

Industrial action threat over BT sale

by Donald Kenett

THREATS of industrial action by militant engineering union branches have greeted the government's plan to turn British Telecom into a private company. Such action could put the banks out of business within weeks, according to London City branch of the Post Office Engineering Union. On the user side, enthusiasm for the plans has been muted.

Action aimed at reversing the government's decision to sell British Telecom is one of the main issues being discussed at the Post Office Engineering Union executive's monthly meeting this week. POEU research officer Roger Darlington said the union would want to consider such action very carefully since the aim was to influence the government rather than BT's customers. But at the same time it is facing pressure from some of its branches, led by Liverpool Internal and London City branches, to take action sooner than later.

Liverpool Internal branch secretary Phil Holt believes that unless the government is persuaded to change its mind before putting the enabling Bill before Parliament in November, the sale of BT will go ahead.

"If the executive is serious it will start an immediate campaign, starting with a protest action and then sanctions which escalate until the government changes its mind," said Holt. "If it is not serious, then it is up to the branches."

Telecommunications Managers' Association chairman Stephen Finch said his association had been arguing for years that BT should be properly financed and this

seemed to be the government's only means of doing it. The move would also help BT to become more efficient by making it accountable to shareholders.

He was less happy about the proposed Office of Telecommunications. "Its role is very unclear," he said. "It has been likened to the Office of Fair Trading, which doesn't fill us with great enthusiasm. Ensuring fair trading and fair treatment in the market is a very small part of the need. Who is going to ensure that the UK has a first-rate telecommunications infrastructure?"

Computing Services Association director-general Doug Eytone was worried that the Office of Telecommunications might be a political appointment responsible to the Industry Secretary rather than an independent body. The sale of BT, he thought, should be a stimulus. For this reason he welcomed it.

But the part we liked most, he said, "was the statement on general licences for value-added network services. That is what we have been fighting for."

The Telecommunications Engineering and Manufacturing Association was originally keen on the idea of a separate authority to control telecommunications, but a spokesman said: "This one isn't exactly what we were looking for. We were looking for something independent of government."

"There is a lot of argument or discussion to come yet - as can be seen from the reaction from the Opposition and the POEU."

The Society of Civil and Public Servants, which has 6,500 members in BT, warned that there were immense dangers in handing over such a vital service to the private sector.



HALL... To control the research cash.

ICL money for university computer research

by Robert Parry

ICL is to cash in on British university computer research - by putting up its own cash.

"It will be a few hundred thousand pounds this year," says ICL's director of product line planning Colin Haley, "half a per cent of our R&D budget." The money will go to fund collaborative research with universities and research institutes, to projects that look likely to be of commercial value to ICL.

While the amount would make little difference to any major development project, the ICL view comes down to pennies spent on research being worth pounds on development.

The money earmarked for the scheme will be handed out by a University Research Council ICL has set up, led by Peter Hall, an ex-director of ICL and current

British Computer Society president. Other council members include Geoff Manning, director of the Rutherford Appleton Lab, as well as various past and present ICL directors.

Research areas to be considered for funding fall into five groups: novel architecture and languages; specification and design methodology; expert systems; man-machine interfaces; and distributed processing and networks.

While the scheme is limited to British universities initially, Hall maintains that Robb Wilmore's concept of the URC is international. It may involve sending people to leading US and European research centres later on. But it will remain separate from any industrial research links like that with Fujitsu in Japan.

Collaboration activities will involve support - through

providing equipment, personnel, money to hire research assistants - and seminars or courses involving ICL staff and researchers from universities.

ICL staff in the research department at Stevenage are likely to provide the main links, going out into universities, then coming back into ICL, but into development work rather than research.

"Research must become part of the natural order of things," says Haley. "To be any use research must move to development at the right time. The trick is to identify those times." The URC aim is to put the money where it will do ICL good, not to support "worthy causes," he adds.

But it is not all one-sided. ICL does not wish to stand in the way of university researchers' "right and proper aspirations," says Hall.

Permanent showcase for IT products

by Nicholas Enticknap

AN AMBITIOUS plan for an international information technology market centre was promoted in Europe last week. Jonathan Noonan, director of international operations for the Fidelity Group, an American money management firm, made a whistle-stop tour through Germany, France and the UK to talk to major information technology companies about the group's Boscom venture.

Boscom, an abbreviation for Boston Computer and Communications Marketcenter, is intended to be a permanent showroom for information industry products, a forum for producers and resellers to meet and do business, a centre for exhibitions and conferences, and a host for several thousand educational sessions a year.

Noonan emphasised the international nature of Boscom. "There will be permanent tenants in the showroom areas from all the major countries, not solely American producers. The audience will also come from around the world: they will be people who are looking to buy computers and communications equipment for professional uses, resellers and so on."

He added, "My purpose in Europe is to talk to companies in different countries. By the time I leave I will have spoken to 15 to 18 different companies. We can provide them with a permanent presence, not just for explicit selling, but to increase their recognition in the US marketplace."

The new centre will be at Commonwealth Pier No. 5, Boston, just across the channel from Logan International Airport. The estimated capital cost of the project is \$100 million, and the opening is scheduled for spring 1984.

Judges reject Burroughs' case on £500,000 ICL contract

by Nicholas Enticknap

ONE of the three prongs of Burroughs' legal assault on the award by the Oxfordshire Regional Health Authority of a £500,000 contract to ICL was blunted in the High Court last week.

The Court of Appeal refused Burroughs' application for an injunction to prevent the contract being completed.

The contract covered the hardware for a system called Stoke, to be installed at the Authority's Northampton District Data Centre.

Burroughs had decided on a legal campaign against this

contract on two grounds. First, the company alleged, the contract was awarded contrary to EEC legislation passed on January 1, 1981, and designed to prevent any form of preferential purchasing. Secondly, if anyone puts out a tender documenting the criteria for selecting a supplier, then those criteria should not be allowed to change.

The first battle in this campaign, in which Burroughs was seeking an injunction to prevent the authority from actually awarding the contract, has now been lost, both in the High Court and on appeal. However, a Burroughs

spokesman confirmed that the fight would continue.

The appeal was turned down on the grounds that an injunction would be almost impossible to police. Lord Justice Griffiths pointed out that the authority could in response meet again and choose ICL again, and if this happened it would involve an immensely long and complex investigation into the thought processes of the authority's members.

The judge also felt that the decision in this case was unlikely to have the effect of determining similar computer acquisition decisions in other installations within

the Oxford health region, pointing out that this would mean the authority would lose all the advantages of an open tender procedure.

There are seven other tenders involved. Value of the contracts concerned was estimated at £6m. Burroughs will continue the fight in two ways, neither of which is likely to result in swift action. First, it is bringing a case in the High Court claiming damages for a wrongful decision. No date has yet been set for this hearing.

Secondly, it has made an approach to the European Commission arguing that the decision is contrary to Community law.

VDUs may be cause of abnormal pregnancies

by Howard Karten

THE British Columbia Hospital Employees' Union in Vancouver is removing all its VDUs and advising members to avoid use of the devices. According to spokesman Jack Gerow, of six pregnancies among women who use the devices heavily in Van-

couver area hospitals only one pregnancy has been normal.

Gerow noted that this situation is similar to that in the Sallitior-General's office in Ottawa, where seven out of seven pregnancies among VDU users had complications of one sort or another.

The Canadian Federal Gov-

ernment is now studying VDUs and is expected to issue a report towards the end of the year.

Some of the devices in this instance are several years old, Gerow said, and may have higher levels of radiation than newer models. Nor has a causal link between the devices and the ab-

normal pregnancies been firmly established.

A report released about one year ago by the US National Institute of Occupational Safety and Health absolved VDUs of Gerow said he was aware of the findings, but was somewhat sceptical about them.

Europe is losing small business market...

by Robert Parry

EUROPEAN suppliers are losing out in the small business systems market. Their share of overall SBS revenues in Europe, 43% in 1981, is down on 1980. They are losing ground basically because desk-top computers are moving in at the bottom end of the market.

Although two European manufacturers, Olivetti and Adler, dominate the low end of the SBS market, US suppliers still rule the upper reaches. Burroughs, NCR and Wang feature among the leaders, joined by Europeans Nixdorf and Philips for systems costing over \$50,000, but all are overshadowed by IBM.

System 34 account for 38% of revenue, according to a report from IDC Europe on the European small business system market.

Some traditional SBS suppliers are fighting back against the tide of micros, notably Olivetti and Adler which have both brought out their own desk-top machines. But the report estimates that already 20% of accounting machine replacement - where moves to small business systems would have been logical - is taken by desk-tops.

Because of the strength of the micro challenge, the SBS market as a whole is changing shape. Growth is faster towards the top end of the market, and systems costing more than \$30,000 are expected to make up three-quarters of overall revenue in 1987, compared to two-thirds for 1981.

The market is healthy, and IDC's report predicts that the European market will be worth \$5,200 million in 1987, an average growth of 20% a year from 1981's \$1,800 million.

Traditional SBS suppliers are under threat at the higher end of the range too. Minicomputer manufacturers are looking for a slice of this market to offset slower growth in their traditional technical markets.

The UK is expected to grow faster than the other major European countries, with annual shipments predicted to triple by 1987. SBS suppliers here are moving upwards to counteract the impact of desk-top micros, and are running into competition from the mini system suppliers.



de BENEDETTI... "Group profits may be lower."

... as Olivetti takes lead in UK sales

by Nicholas Enticknap
BRITISH OLIVETTI has undertaken a major restructuring of its marketing operations. Key changes are a fundamental switch of emphasis in the operations of its Business Systems Division, and the establishment of a new Micro Division to handle large volume marketing of the new 16-bit M20 personal computer.

Normally such changes mean a company has been getting it wrong, but this is not the case here. British Olivetti has just reported turnover up 40% over the first six months of 1982: no figures were published, but this must mean first half sales over £40 million.

No profit figures were published either, but a spokesman said the return was significantly better than for the same period last year. This rise counter to the trend within Olivetti as a whole. Chief executive Carlo de Benedetti said last month that group profits for 1982 were expected to be lower than last year's.

The company says the results are due to good performance by all divisions. It claims to have done exceptionally well with three product ranges: the ET electronic typewriters, the 10/10 stand-alone word processors and the Line 1 terminal systems, to the extent that all three are the current market leaders on sales volume.

British Olivetti's Business Systems Division, said the spokesman, has been the basis of the company's build-up for many years, selling business computers in the £3,000 to £20,000 price range. Now the heyday of micro systems, says Olivetti, is selling these through specialist micro dealers.

Speed up technology - CBI



BIDE... Call for quicker introduction of new technology.

by Maggie McLening
AN industry chief last week called for faster introduction of new technology as an aid to increase UK exports.

Sir Austin Bide, chairman of the Confederation of British Industry research and technology committee, and chairman of Glaxo Holdings, made the call in London at the launch of a CBI report on putting technology to work.

"An international race is on to be the first to market new high technology products, processes and services. It is a race that Britain cannot afford to lose," he said. "For the winners, the prize is

substantial new business. And that could give us the chance to make a start on cutting back the debt queues."

The report on new technological developments and opportunities for future growth is the result of interviews with over 50 key figures at universities, companies, research organisations and government laboratories. Six broad areas were covered including microelectronics, biotechnology and information technology, with advanced fibre optics and fibre-reinforced composite materials being examined in more detail.

Shortcomings in the British "system" which might slow down innovation were also analysed in the report. Resistance to change on the part of many professional institutions, generally poor understanding of science, technology and industry and the lack of an industrial forum in which to develop policies and objectives, were blamed for slow response within companies.

Other factors cited by the CBI included shortages of qualified engineers, technologists and technicians for design, development and production work and difficulties in raising risk capital for technology-based investment.

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Will the next Jaguar cost less?

British Aerospace/Poly plan to cut defence costs

by Robert Parry

CHEAPER British military electronics is on the way if a government-assisted scheme achieves its aims.

British Aerospace Dynamics Group Bracknell Division - lately Sperry Gyroscope - and Bristol Polytechnic have been awarded £145,000 under the Teaching Company Scheme for a three-year project to analyse production techniques used in the manufacture of defence electronic products.

Four graduates - in ergonomics and work design, industrial training and management, engineering, and production engineering and management - have

been appointed as Associates in the Polytechnic and will do most of the work on the project. They will be based in BAe, but will come back to the Polytechnic regularly.

Computer studies, management studies and engineering departments at Bristol are involved, co-ordinated by the South West Regional Management Centre based there.

The initiative for the project came from BAe's Bristol plant, but it encompasses other plants in Plymouth and Bracknell. The electronics products manufactured there feature in the navigation, guidance, control and data handling applications.

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Auditors 'watchdogs for privacy' - NCC

by Andrew Thomas
COMPANY auditors could be the public watchdogs for privacy, as well as for financial malpractice.

That is the proposal of the National Computing Centre and major accounting firm Deloitte, Haskins & Sells, based on their pilot study made in the North-west of England.

They propose that external auditors check that computer systems meet legislative requirements, in a report submitted to the Home Office.

Half of the £70,000 needed to carry out the investigation came from the Department of Industry, and the remainder from the efforts of the NCC. Auditors from Deloitte, Haskins & Sells carried out the investigations on organisations

such as the Trustee Savings Bank, Royal Life Insurance, United Biscuits and the City of Liverpool Corporation.

According to Ian Douglas, a senior consultant at the NCC who worked on the project, the privacy shortcomings discovered were of a minor nature.

"The sort of thing we found was much as we expected," said Douglas. "There were no major breaches. The main shortcomings lay in areas such as waste disposal and in the fact that not many companies validate personal data, such as dates of birth, in the same manner as financial information."

The auditors used standard techniques, and checked areas such as access control to computer and terminal rooms. "We also ran

Deloitte's Auditee package against personal files looking for odd data - the sort of thing you didn't expect to be there," said Douglas.

The audit team comprised four people, two with extensive audit experience, and two with a computing background.

The report claims that external auditors, provided they have adequate computer experience, are well qualified to carry out privacy audits. The NCC expects that some form of independent check will be seen as desirable even if the Home Office does not make such checks mandatory.

"The project showed that the costs of such an inspection was relatively small," said NCC director David Fairbairn.



FAIRBAIRN... "Inspection costs relatively small".

Printers presented to secondary schools

by Andrew Thomas
SCHOOLS in Leeds have been given free printers following a chance meeting at a Rotary Club dinner.

David Noble, computer manager at cash-and-carry firm Makro's Leeds store, had 20 Hewlett-Packard 2762A printers each worth £5,000 when new, standing idle due to a hardware upgrade, and, in conversation with the chairman of one of the local schools' parent-teacher associations, discovered a worthwhile means of disposing of them.

Every secondary school in Leeds has a Research Machine 380Z,

provided by the local education authority and government funds, but they have to buy the peripherals themselves. As a result, not every school had printing facilities and were unable to make full use of the machines.

"The obvious thing was to give the printers to them," said Noble, "so we installed one on a trial basis."

No major problems were encountered, and Makro presented all 20 printers to Leeds education department, three or four going to each school. And it looks as if other schools in the area will be receiving free hardware soon.

MP attacks technology venture cash

● From front page

which means that it has stopped doing any business and that there are no plans to re-form the company, leaving users of some 100 Altergo products out on a limb.

Altergo had already withdrawn its licence for the Shadow II teleprocessing monitor and Quota II software in September 1981, but it was unable to terminate licences for Shadow customers using CPG and the GUTS time sharing system until June this year.

A company called Altergo Inc was set up last year by Altergo to support the 200 users of Shadow II and Quota II, but there has been some confusion over the remaining 100 customers during the handover from Britton-Lee.

According to Elizabeth Skerrett-Smith, marketing manager for Altergo Software, the company is suing Britton-Lee for hundreds of thousands of dollars "the monies that should have been paid in royalties since the takeover."

'Anything you want' out of Aids database

by Nicholas Enticknap

THERE are now so many sources of government financial assistance that it is easy to miss out through sheer ignorance. And even if you do know about a scheme, the details are constantly changing.

To help those whose job it is to know about such things, a unit at Strathclyde University has built a database called Aids.

Aids is the brainchild of Kevin Allen, co-director of the Centre for the Study of Public Policy at the university. Allen describes himself as "having a missionary zeal about these industrial aids and making the public aware of them," and has published a book listing them all.

The details in the book have now been entered into a database held on an ICL 2980 at Edinburgh University. The database access system was designed by Allen's colleague, Dr Stephen Togg, who is director of the social statistics laboratory at Strathclyde University.

Allen describes the system as "very user-friendly and simple:

you simply enter numbers, very much as on Prestel. We find that people can sit down at a terminal, and after about 45 minutes can get anything they want out of it."

The system works on a principle of filters, cutting out inappropriate sources of aid till you are left with a shortlist of suitable ones. There are filters for location, industry, purpose of aid (such as to buy equipment, or to help the disabled), nature of incentive (grant, loan, or tax concession) and administrative department.

When a short list has been obtained, the user can browse through the list, and obtain details of any time restriction on the scheme; the address to apply to, and so on.

Allen says he has been having discussions with three potential large-scale users of the system - a government department, a bank and a regional authority. The system will not be marketed, but Allen would be happy to talk to anyone who feels they can make use of it.

SALES BRIEF Leasco wins police contract

LEASCO Software has won a £500,000 contract from Cumbria Police to supply a resource management and message switching system similar to the one it supplied to West Midlands Police. Leasco was picked from a shortlist of six companies.

The system, which is due to be implemented late next year, will be based on two Ferranti Argus 700GL minis operating in hot standby mode and it will allow the county's seven control centres to pool all their information. It will also be linked to the Police National Computer.

Bureau on TV

ENTERPRISE, the bureau that runs airline booking services for television companies on its Honeywell computers at Thames Ditton, has signed up TV-AM, the new breakfast television franchise holder, as its 14th customer. TV-AM has commissioned an enhanced version of Enterprise's system to enable it to handle bookings for several channels and several regions. The enhanced version will also be offered to existing clients.

NCR ousts ICL

HILLS Pharmaceuticals is to replace the ICL 2904 at its head office in Burnley with an NCR 1-9020 at head office linked to NCR 1-9020s in its Birmingham, Huddersfield and Warrington offices.

Bank's fourth

BARCLAYS Bank has ordered a fourth OCR Scandata optical character and magnetic ink recognition system for its Northampton clearing centre. The system, due to be installed next month, cost £280,000 and includes a 128 Kbyte central processor, two 33 Mbyte disc drives and other peripherals.

Councils' choice

DACOLL has won orders totalling £300,000 from eight local authorities. The orders were mostly for DACOLL Democrat microcomputers and M248 selectable-protocol VDUs to access files held on mainframe from planning, estates management and personnel departments and careers offices. The authorities include Bradford, Humberstone, Manchester and East Hants.

Repeat order

FERRANTI has won a repeat order from London Transport for a £500,000 system to control power distribution on the Northern Line of the underground railway.

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Australian firm's UK users find lucky Star

by Maggie McLening

UK SYSTEMS house Star is poised to come to the rescue of 350 UK users of collapsed Australian-based Hartley Computer Company.

The London company is set to buy Hartley's UK operation, which is still trading under the control of the receiver.

Hartley specialised in systems for accountancy practices and about 10% of its UK users have the Australian company's own 3900 computer. The remainder use DEC, Wang or Data General machines.

Support for these machines comes directly from the manufacturer, but the Hartley computer was manufactured in Australia,

using a grant from the Australian government.

"In the past the Hartley mini has been a piece of fairly trouble-free equipment, but there could be problems with the spares being produced in Australia", said David Woods, secretary of the Hartley Users' Association.

"Hopefully, many of them will prove to be standard, so we can buy them from other sources. There is unlikely to be any problem with the software as it has been installed for a considerable time."

The user group as yet has no definite information on the possible Star Group takeover bid, although the receiver has promised that they will be in on the final

negotiations, so that they will have the opportunity to influence terms and conditions for Hartley users.

"As a group we would press for at least three years' support on our current equipment if Star does take over. This would be a reasonable period because everyone tends to write off equipment over a five-year term", explained Woods.

Star Group's Auditor range of minicomputer systems is roughly comparable to the Hartley HAPAS accounting systems, so it would be a logical move for Star to adopt the Hartley users.

Star managing director David Blechner refused to confirm or deny the takeover.

"We are talking to Hartley about acquiring them," he said.



BLECHNER... "Talking to Hartley about acquiring them."

STC record results

STORAGE TECHNOLOGY has repeated its record-breaking 1981 performance with record results in the first half of 1982.

Profit in the first half rose 43% while sales went up by 35%, compared with last year.

The 1981 rise was largely attributed to the delay in the appearance of IBM's 3380, so STC and Memorex were able to step in and supply more disc drives. However, the result from STC in the first half of 1982 underlines the success of the operation since IBM is now supplying 3380s in volume in the US.

The results show that sales are not flagging, an impression erroneously given in an article on disc drives (CW, July 22).

Derek Thompson, STC's UK managing director, was brought in to boost sales and marketing not to boost flagging sales.



ANDREWS... Selling his own company to himself.

Consultancy ex-employees set up new company with £500,000 orders

by Maggie McLening

A BREAKAWAY group of ex-employees of Allan D'Morais consultants has launched a new company with over £500,000 worth of orders.

Effectively the entire business systems division of the D'Morais group has formed Advanced Business Technology, leaving the specialist areas of education, time sharing and consulting with the original company.

Jan Andrews, a founder member of the consulting group, is now managing director of ABT, having been in the strange position of selling his own company to himself.

"It was really a question of putting your money where your mouth is. The funding required for quantum selling in the business

division was very different from other parts of the company", he explained.

"At Christmas we formed a management group to keep the staff highly motivated, but the company didn't agree with our proposals, so the business division was put on the open market."

"There was a lot of interest, but our group of staff managed to raise substantially more than expected, and the Midland Bank offered to match us under their Venture Capital Scheme, so we were able to top the highest outside bid. All the software and stock has come from the original business division, so we are effectively the same company as before, but with more freedom", said Andrews.

To coincide with the company launch, ABT has announced an

automated language processing system called ALPS based on Data General Eclipse minicomputers, and two revamped versions of existing turnkey systems for the manufacturing and distribution industry. These two, Component and Instrument Distribution (CID) and Office Supplies System (OSS), are aimed at the light engineering, electronics and office supplies distributors.

According to Andrews, the new company arrangement will enable his staff to get much closer to the users, of which there are over 40 at the moment, and offer a better service through tuning systems to their requirements.

Demand for the ALPS system is expected to be limited as it is aimed at a specialist area and costs between £120,000 and £130,000.

HP minis run into radio interference

by Howard Karten and Nicholas Enticknap

SEVERAL users of Hewlett-Packard HP-3000 minicomputers in Manhattan have reported an unusual problem: radio frequency interference has affected the data stored on their disc drives. The problem can be localised to the extent that with two systems in the same computer room, only one might be affected. Once it occurs, however, it is persistent.

There seems no reason why the problem should be restricted to Hewlett-Packard systems: other users may be suffering the same problem but be unaware of what is causing the trouble.

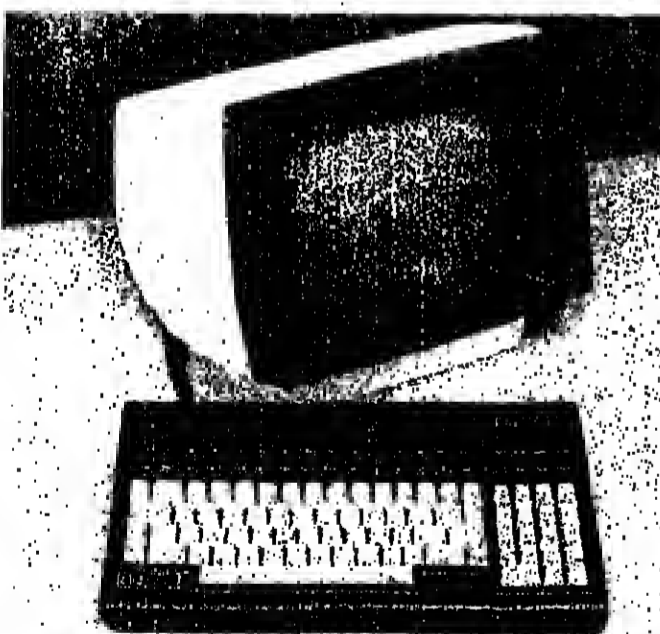
A Hewlett-Packard spokesman in New Jersey said that the specification for the electromagnetic interference for disc drives defined a maximum tolerance level, and if this was exceeded, problems could arise. In the short term the solution to the interference was simply to switch the drive off and on again.

In the longer term the cure was "to correct the environment". There are ways of shielding the room so as to prevent the interference from affecting the drives. The spokesman pointed out that Hewlett-Packard itself had offices within the affected area, and the computer system there had never suffered any trouble.

That Manhattan should be so badly affected was not surprising, he added: it is a media centre and has many sites with high levels of radio emission.

The spokesman added that the problem had been encountered in other areas, particularly in sites located close to airports. Hewlett-Packard in the UK, however, said that they had no knowledge of similar problems here.

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Patent granted — after 10-year legal tussle

by Nicholas Enteknap
A SOFTWARE patent application for a financial package called Valport has finally been granted in the US after a 10-year legal battle. It represents another step forward in the long campaign to ensure that developers of commercially desirable software get a fair return for their inventiveness.

The problem besetting US software inventors is a Supreme Court ruling that software as such is not patentable. The inventor of Valport, Frederic Towers of Maryland, got round this by patenting a method of operating a computer

that runs Valport rather than the program itself.

Valport is a securities portfolio valuation program. Essentially it takes the shareholdings that make up a particular portfolio, multiplies each by the latest market place and totals the answers to arrive at the overall valuation.

Valport is sold not as a package but as a service on a time sharing basis. A database of some 60,000 securities is maintained and is updated daily. About a dozen different reports can be extracted from the database, and these are available to anyone who connects a

terminal into the system using dial-up lines.

What has been patented, therefore, is a method of producing securities portfolio valuation reports for multiple simultaneous users from a database which is independently updated on a continuous basis.

Valport, which has been assigned patent number 4,334,270, is not the first piece of software to obtain a patent. The distinction is claimed by an information retrieval system called Swift-Answer which, after a legal battle, was granted a patent last summer.

Systems house plugs gap for Wang minis

TWO critical gaps in software for Wang 2000 minicomputers have been plugged by systems house PME.

Building-based PME has announced a financial planning package that can be interfaced with integrated accounting software from The Office Manager (TOM), and a multi-currency option for the sales and bought ledger. Wang users have long suffered from shortages of the appropriate software, and particularly from delays in development from Wang itself.

"We had been looking for a ready-written financial modelling package for some time, but the only one I came across cost over £1,000, so we decided to write our own", said Michael Powell, managing director of PME.

The result is more reasonably priced for the Wang market at £400, and was written using Speed, the TOM system de-

velopment and file management tool.

Although the current version is standalone, Powell intends to write an interface to the nominal ledger so that budgets may be inserted directly.

Multi-currency facilities are a rarity in most accounting systems, although the demand for them is growing fast. PME's option for the sales and bought ledger modules of the TOM accounting package has already been installed at publishers Mitchell Beasley, a subsidiary of American Express, and there has been a great deal of interest shown by other TOM users, according to Powell.

The system caters for any number of different currencies, the rate of exchange at the time a transaction is generated being held on file to be later compared with the rate at the time it is cleared, the difference being entered into an exchange gains and losses account.

Condor for 16-bit micros soon in UK

RELATIONAL database system Condor, widely used on mini and mainframe computers will shortly be available in the UK for 16-bit micros.

MOM Systems of Gravesend, awarded sole UK manufacturing franchise by Condor Computer Corp, has been selling the package for CPM-based micros and will launch versions for the Act Sirius I and IBM Personal Computer within the next three weeks.

"Everybody is after the Sirius version", commented Bill Johnson, marketing manager.

There are three price levels for Condor, depending on the level of flexibility required. Series 20-1, which gives file handling and screen formatting costs £350; 20-2 offers multiple file handling with Project and Join facilities, for £375; and 20-3 for larger files is priced at £650.

by Maggie McLening



New golf handicapping rules should help to sell the Osborne 1 microcomputer.

Tee-off for Clubmaster as golfers face new handicapping rules

NEW golf handicapping rules in the UK should help to sell a system designed for the Osborne 1 microcomputer.

Answering the call for software to make use of Osborne's portability, ERA Consultants of Stockport, Cheshire, have designed a system for golf clubs that calculates individual handicaps, prints competition scores and handles club finance and administration.

According to ERA managing director Keith Roberts, himself a top category amateur golfer, the new regulations will change methods of calculating handicaps for one million golfers at about 2,750 clubs.

"I always had the dream that maybe we could write a system like this, and the catalyst has been the new regulations," said Roberts.

"With, typically, over 100 golfers in a competition, often playing in different divisions and sometimes with a handicap limit for the day, the control of scores and handicaps and the production of the score-sheet becomes a major task at an often inconvenient time."

To aid instant extraction of data, the Clubmaster system does not use numeric codes for players, all files being accessed by the use of a four-character abbreviation of the member's name, read straight from the score card. The system includes administration facilities for club membership and subscription, producing lists of unpaid members and reminder notices on demand, and Supercalc for financial modelling.

Written in C-Basic to run under the CPM operating system, Clubmaster could easily be transferred

to run on a different machine, but Roberts has no plans to move the entire package.

"Hopefully our system will become one of the 'gospel' systems on the Osborne, and it would be hard to find another machine suitable for use out on the greens and for the manager to take home with him to do his accounts", he explained. "However, we intend to produce the membership and subscription programs as a standalone system for the open club and society market to run on any CPM micro, and to develop a re-order point stock control system for the Osborne."

Overall price of the system is £2,500, for which ERA Consultants also provide training and support. Two agencies have been appointed in Ireland and Yorkshire.

MICRO NEWS

Top of PDP-11 range is put on a single chip

THE DEC range of single-chip microprocessors implementing its PDP-11 minicomputer architecture has a new high-end offering.

The MicroJ-11 puts the power of a top of the PDP-11/70 mini range on to a single CMOS chip incorporating full memory management and protection.

It uses the full PDP-11 instruction set including the extended instruction set, single and double precision floating point instructions and microcoded debugging commands. The on-chip memory management can address four Mbytes of physical memory, and will support cache memory and multiprocessing.

The announcement by DEC of the J-11 marks a change in the company's strategy. The single-chip microprocessors, the T-11 introduced in March and the J-11, were initially developed for internal use. Putting the PDP-11 architecture on to single chips gives cost reduction, but also the opportunity to sell the chips to end users.

DEC's aim in this is more protection of existing board-level products and of the established computer architecture rather than to compete with volume manufacturers like Intel or Motorola. The idea is that single chip sales act as a lever to board sales.

Like the T-11, the new J-11 will feature on a board-level product

from DEC, and will be sold through distributors Rapid Recall and Hawk Electronics in the UK. Samples will be available next spring, at about £300 each, with volume availability towards the end of 1983.

Software development tools, taking advantage of what DEC feels is its strength — the large installed base and user experience in programming PDP-11, LSI-11 and VAX systems — will be announced soon, according to a DEC spokesman.

The chips are manufactured by DEC itself, which although it has only recently been moving towards supplying chips to the end-user market, produces as many devices as the volume semiconductor manufacturers — it just uses the bulk of them itself.

The J-11 uses 32-bit internal data paths, with 16-bit external paths, and a pipelined design. It runs with a 20 MHz clock. Power consumption is less than one Watt.

Like other chip manufacturers with 16-bit and 16/32-bit processors, DEC is looking to true 32-bit devices. In DEC's case this would be implementations of the VAX architecture on a single chip, driven by the same type of forces that brought about the current PDP-11 single-chippers.

But this will not be for some time, as DEC feels the market can be satisfied by 16-bit products for the time being.

Ai's UK distributor broadens its scope

THE UK distributor of microcomputer business systems from Japanese Ai Electronics has diversified into microprocessor development systems and industrial control, also from Ai.

British-owned Ai Microcomputers has added the FDPS-12D, for floppy disc programming system, to the ABC range of business systems already carries.

Later this year a version of this system aimed directly at industrial control applications, FDPS-22D, will be introduced, as will Ai's 16-bit microcomputer, the M-16.

The microprocessor development system is "by and large a fairly standard piece of equipment", says technical director Mike Burley. Like the Ai micros it is based on a Z80 processor, and comes with twin floppies and 64K of RAM as standard.

It is built round Ai's standard bus, and peripheral cards giving extra RAM, hard disc, printer interfaces and the like from the ABC range of business machines can be used.

But a PROM writer is built into the system, making it easy to incorporate application software developed on the systems into target systems, and the three processors

supported currently — Z80, 8080 and 8085 — have separate fully implemented assemblers. In-circuit emulators for the three processors are available.

It is a proven product, with about 5,000 installed world-wide — 1,000 of these in NCR in the US according to Burley — and reflects the Japanese company's roots in heavy industry and process control. It will sell for £6,700, including development software and an in-circuit emulator, with extra emulators costing about £1,500.

The system runs under two operating systems, Ai's own Dosker and CPM. Dosker is based on the DEC PDP-8 operating system. "It has Unix-like features and is very powerful, but you need to be a programmer to use it," says Ai Microcomputers' managing director John Wheeler. "And it makes CPM look user-friendly."

Cross-assemblers for the Z8000 and 8086 will be available towards the end of the year, when Ai's 8086 based 16-bit comes in.

Wheeler has high hopes for this multi-user machine, reckoning it "runs rings round Sirius," but also fears it will hit the market for Ai's top end 8-bit machine, the ABC-26, very hard.

One-user systems link

TEKTRONIX is to develop means to link existing single-user microprocessor development systems to its minicomputer based multi-user system. A product to network existing standalone development systems, initially from Intel and Motorola, is due for an autumn launch.

The Tektronix development system at the centre of the network, the 8560, supports multiple users on a time sharing basis, running its own version of the popular Unix operating system, Trux. But the market wants to link single-

user systems, says Tektronix digital products marketing manager John Mills.

"As we went out selling, we discovered users wanted to network single-user systems, really for management control. So we thought why not put this into a product?"

The choice of Inteltec development systems as the first non-Tektronix products to be brought into the net is an obvious one. There are more Intel units in use than other captive development systems — aimed at the supplier's own microprocessor products.

by Robert Parry

Kode Services to offer Corvus maintenance

THIRD party maintenance for Corvus products is to be offered by Kode Services. Kode has been taken on as authorised maintainer in the UK and Europe. The agreement runs for five years and covers all Corvus microcomputer and peripheral products.

The Corvus range includes networking systems — the Omninet local area net — and a 16-bit workstation, the Concept. It centres around hard disc systems for microcomputers, based on Winchester drives from IMI. Last October Kode signed agreements with IMI and Kennedy and Seagat, to carry out repairs on their behalf on Winchester drives installed in Europe.

This agreement with IMI played a large part in clinching the deal with Corvus.

"The fact that we can repair the IMI Winchester, and that we are already working on similar products was vital," says Kode's managing director John May. Experience in providing a maintenance service throughout Europe also counted, May reckons. "We've been doing this for Winchester, so we can do it just as easily for other products."

Meanwhile microcomputer distributor ACT has extended the warranty period on its Sirius I. Faults on the first 2,000 units shipped in the UK were running at such a low level that ACT has quadrupled the warranty period from the standard 90 days to one year.

According to Peter Oldershaw, ACT's engineering director, there were only 11 faults in the floppy disc drives on the 2,000 systems — which he considers unusually low for what is the least reliable part of a microcomputer system.



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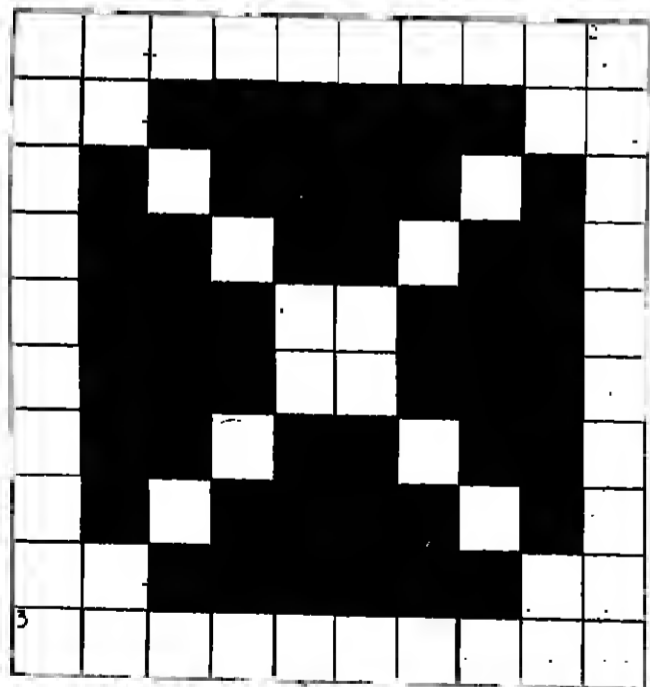
Middle East Computing began as a single-issue publication, backing the Gulf Computer Exhibition and Conference at Dubai last December. Its enormous success revealed such an urgent and widespread demand for computer product information that it will be published regularly from April.

6000 copies will be sent to established computer users or key personnel within government and major business organisations, in the Middle East countries predominant in the computer market. The circulation was compiled through the full research resources of Computer Weekly and IPC Business Press backed by contacts made at the Gulf Computer Exhibition.

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ACROSS

- Dad offering choice of drink? (4,3,3)
- Red Rum after the National (4,3,3)

DOWN

- Crowned like a Viking (6,3,2)
- Near the bird (4,2,4)

DIAGONAL

- A capital place to locate (10)
- So he must look well (2,3,5)

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SOFTWARE BRIEF

Database Week in October

DATABASE WEEK, a series of linked tutorial events, has been announced by Permamon Info-tech.

The course is to be held in London between October 4-8, and will include an assessment of relational database systems by Dr Ted Codd of IBM and David Upham, president of Relational Database Associates.

Quick retrieval

SYSTEMS consultancy and software division of Lion Microcomputers has announced the FIRS II information retrieval package. Data may be input by hand or direct from a text file, and retrieved within one second regardless of the file size.

Cost control

SCICON Computer Services is now offering the Project/2 scheduling and cost control system developed by Project Development, Inc of Cambridge, Massachusetts, on its Univac bureau service. Project/2 uses the critical path method for analysis of project planning.

IBM's golden clouds still have black linings

WALL STREET, ever loyal to IBM, waxed quietly euphoric at the latest results from Ma Blue, despite some clouds on its horizon. In an announcement which opened the half-yearly reporting season for American corporations, IBM led the way with figures that appeared to put it back on a growth path — something which has largely escaped the corporation for the last three years.

Profits for the first six months were 15% up at \$1.77 billion on the same period last year, and sales rose behind the profits by 13% to \$15.12 billion. The half-year figures were even more spectacular, with profits up 24% at \$1.85 billion, and sales 17% ahead at \$16.05 billion.

The quarterly profit of \$1 billion was the first produced by the corporation not for a traditionally buoyant first quarter. The Wall Street stockbrokers showed their joy by pushing up the value of stock.

The value of IBM shares rose an average five dollars, adding \$2.5 billion to the value of the company on the stock market — that is the figure arrived at by multiplying the number of shares on issue by the share price, or in this case the price increase.

But there are two or three black linings to the sudden golden clouds on IBM's horizon. Earlier this year, IBM authorised the creation, though not the sale of 100 million new shares.

The sale of these shares on the market would dilute the current share value by 20%, apart from whistling for an unbelievable \$6.5 billion in investors' money, an event likely to depress both the share price and Wall Street.

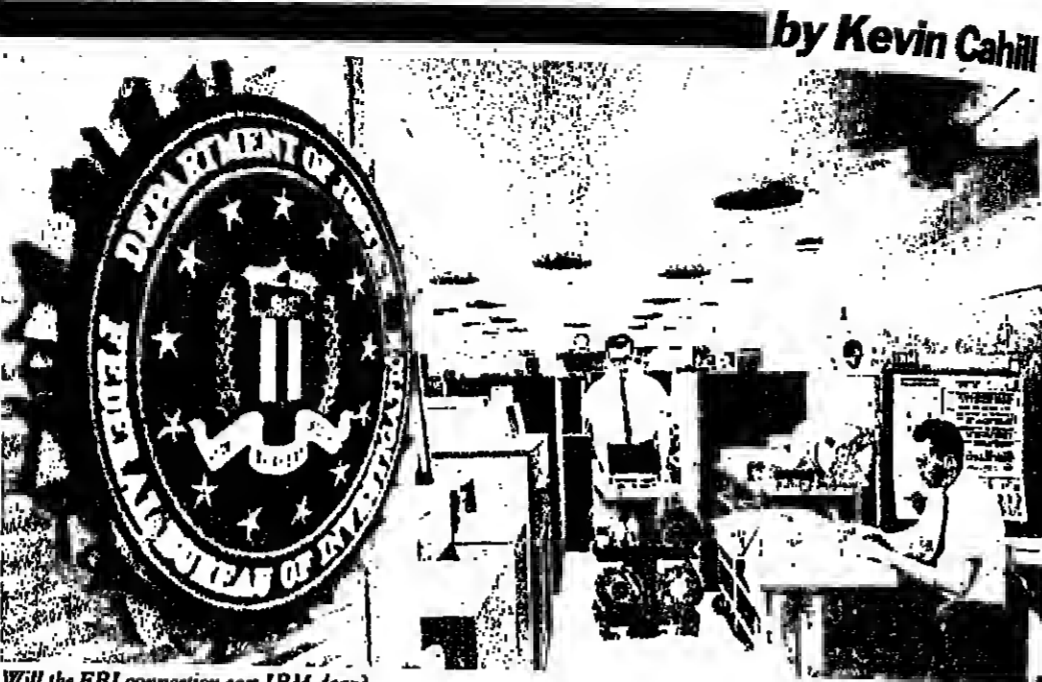
Not that the money would do any harm to IBM or its debts of \$3 to \$5 billion, to which the company is adding a further \$500 million of 25-year loan stock this week.

Additionally, there is the unresolved dispute with the EEC Commission over allegations of abuse by IBM of its dominant position in the European computer marketplace.

Whatever IBM's actual position, the growing European anger over the US trade war with the Eastern bloc (and with everyone else) may negatively influence the EEC's attitude to IBM.

This will certainly be the case if, as one canny observer in California remarked, "The Japscam scandal does for IBM what Chile did for ITT." What he means is that if the Japscam situation proves (not necessarily legally) to have been a case of maliciously motivated entrapment, then IBM will emerge as the black sheep, putting its growing Japanese connections with Matsushita and the NTT in Japan in jeopardy.

In the wake of what may prove to be an ill-judged involvement in the FBI attack on the Japanese, the dislike may turn to government hostility worldwide and increased customer resistance.



Will the FBI connection cost IBM dear?

as one canny observer in California remarked, "The Japscam scandal does for IBM what Chile did for ITT." What he means is that if the Japscam situation proves (not necessarily legally) to have been a case of maliciously motivated entrapment, then IBM will emerge as the black sheep, putting its growing Japanese connections with Matsushita and the NTT in Japan in jeopardy.

City brokers recover confidence in ICL

AFTER a quiet spring and early summer, the thoughts of the City of London's stockbrokers seem to be turning lightly to computers. Part of the reason is undoubtedly the appearance on the USM of a number of new computer companies, among them Knight Programming and Miles 33. But the underlying reason, based on a random sample of City gossip and the recent 15% rise in the value of the stock, seems to be ICL.

Earlier this year, a number of stockbrokers publicly listed ICL as a recovery stock. This means that in the view of the money men the company was past the worst — not quite out of danger, but a good speculative buy.

The restored confidence in the shares also stemmed from a series of good profit forecasts made by brokers who follow the stock.

Neil Burton of brokers Henry Cook Lumsden said that he expected ICL to produce a profit of £20 million for 1981/82.

Peter Minton, who has always taken a cautious approach to ICL, suggested in a circular from brokers Laing and Cruickshank that £5 to £10 million was possible.

Irrespective of whether the cautious or the optimistic are correct, the key is that both are forecasting profits, a remarkable change from last year's overall loss of £150 million.

The company itself has strengthened its battered balance sheet by selling £32 million in stock earlier this year, and adding the £28 million assets of its leasing subsidiary.

In the first half the order book improved about 5% on last year and despite the caution expressed by chairman Sir Christopher Laidlaw, the brokers are looking for ICL's traditional pattern of better trading in the second half year, to boost that 5% to 15% or more.

The improved performance, taken with the permanent cost reductions of about £60 million achieved through the redundancy programme last year, is what has given the brokers their general optimism.

But, as one broker cautioned this week, there are two groups of ICL stockholders whose actions could affect the shares in different ways. Some brokers and their clients are sitting on huge paper losses from the period when ICL shares stood at £1.20 to £1.50. Some would like to see the value back there, even if it slid later, in order to get rid of a troublesome stock.

There is also a substantial group of shareholders sitting on fat profits from picking up stock at this year's low of 25p, and on the trail upwards to the current price of 66p.

Brokers Heseline Moss recently advised their clients to look at the 100% rise in the share since they advised a buy and consider taking a profit.

The question for investors, shareholders and ICL employees holding the stocks is where is the share going, and how long will it take to get there?

Some brokers talk of £1.50 to £2.00 next year — and that is taking into consideration the expected rights issue at £1.



MINTON... cautious.

of shareholders sitting on fat profits from picking up stock at this year's low of 25p, and on the trail upwards to the current price of 66p.

IBM-Matsushita micros project looks set to go ahead despite rift

DESPITE the rift between the Americans and the Japanese following the industrial espionage case in California, new links between Japanese and US computer companies continue to flourish.

One of the major new connections is the joint venture project between IBM and Matsushita to manufacture a range of small micro and business machines in Japan for the American market. It is rumoured that the deal is about to be made formal.

According to Japanese sources, IBM approached Matsushita, one of Japan's biggest and most efficient electronics companies, about a year ago.

IBM, anxious to concentrate on its large machine business, but interested in extending its product range into the personal micros which it recently entered, approached Matsushita to manufacture both additional machines and peripherals for what is likely to become a complete range of machines, comparable to DEC's.

The Japanese company dropped out of the mainframe market in the middle of the Sixties and currently produces a small selection of personal micros, none of which competes with IBM products.

Another link-up announced in Japan and also affecting one of the parties to the IBM secrets case, is that between Hitachi and Burroughs. According to the Japan Economic Journal, Burroughs is negotiating to introduce Hitachi's advanced fibre optic techniques for telecommunications networks.

Burroughs is also thought to be interested in a worldwide marketing deal for Hitachi's small scale computer systems.

The JIE also quoted the Japanese Ministry of International Trade and Industry as welcoming the collaboration between the two companies and seeing in it a move to lessen the growing tension in high technology trade between Japan and the US.

An in the wake of a deal between Sperry Univac and Mitsubishi for the supply of 64K RAMs to Sperry, comes another much broader deal covering the joint marketing production and development of computers.

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Scan Data back in profit

THE worst seems to be over at Sussex-based Scan Data International which is back in profit for the half year, following £400,000 of losses last year.

The company, which markets Texas Instruments and Onyx equipment, came to the Stock Exchange Unlisted Securities Market on the day the market opened last year, and was also the first computer company to use the new facility.

This gave the company an unusually high profile in finance circles and its losses last year acted as a damper on the fledgling market in small computer company stocks.

However Scan chairman Martin Baldwin remained confident in the face of City uncertainty and his patience appears to have paid off. Turnover for the first half of 1982 rose to £1.94 million compared with £1.53 million for the same period last year.

Profits of £78,000 were declared for the half-year compared with losses of £140,650 for the same period last year.

Services slimmer after slump

by Boris Sedacca

THE UK computer services industry has taken off again — but is doing it with fewer people.

Latest government statistics show that the industry has recovered from its slump in early 1981 and that billings for the end of the year had gone up by 5% to £158 million and were 11% higher than at the end of 1980.

But the increase is not uniform and a close look at the figures shows that some traditional areas of revenue, such as data preparation, are shrinking.

"Employment in services companies is plateauing at the moment," said Doug Rycions, director-general of the Computing Services Association.

"Before, it had been going up by leaps and bounds, but now the large bureaux are reducing their staff, mainly by natural wastage."

"Most services companies have increased turnovers but the conference and seminar business has been hard hit, and those figures have crept into the statistics."

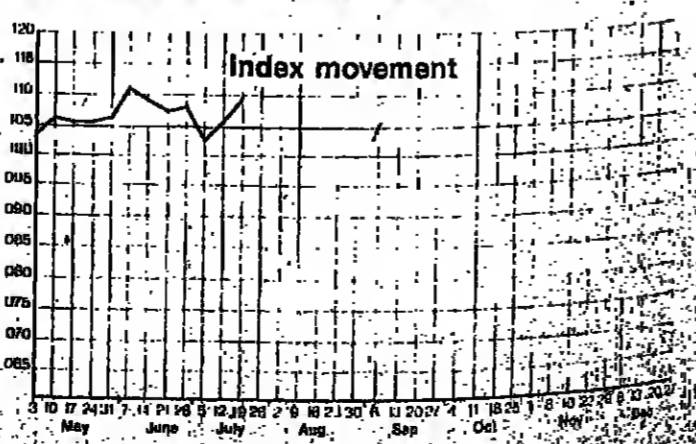
"The decline in data preparation services has been a long-running trend for some time now because this is all being handed back in the customer who is keying in data direct from online connections."

Rycions added that the consultancy and software products market was still very buoyant, but also pointed out that a new wave of companies providing micro software were not included in the figures. "There are a large number of small companies which were never included in the statistics but which will eventually find their way in as they grow."

CW SHARES TABLE

Date 28/7/82		Index 1982		Change +47	
London Stock Exchange		Price		Cmgs	
1982	1981	1982	1981	1982	1981
100	100	100	100	100	100
101	101	101	101	101	101
102	102	102	102	102	102
103	103	103	103	103	103
104	104	104	104	104	104
105	105	105	105	105	105
106	106	106	106	106	106
107	107	107	107	107	107
108	108	108	108	108	108
109	109	109	109	109	109
110	110	110	110	110	110
111	111	111	111	111	111
112	112	112	112	112	112

The table shows the closing prices on Thursday. The Share Index is based on the price of the UK companies in the table. Highs and Lows have been adjusted where necessary. *Shares traded on the Unlisted Securities Market or under Rule 163(2)(c).



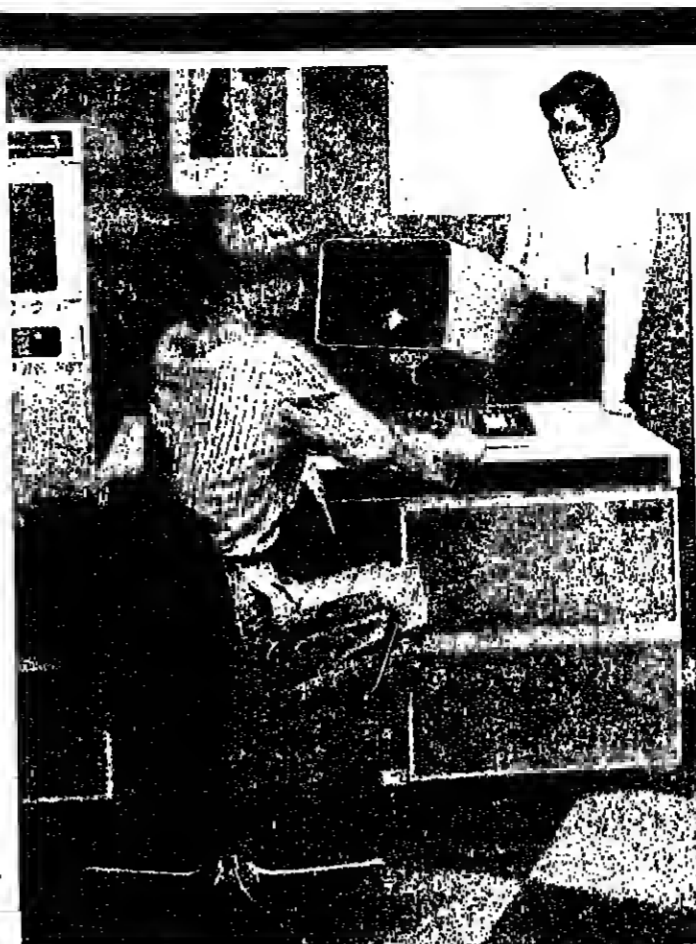
OP SPOT Jobs safe in US

IN the US earlier this month (impressed?) I had the opportunity to talk to a number of computer personages, and unearthed the interesting, not to say surprising, fact that our "American cousins" are lagging behind us in one rather critical area.

The advent of machines such as the ME29 and 4300 series has led to sales of operatorless systems, much redundancy, waiting and gnashing of teeth. (While there are undoubtedly some installations which claim to have no operators, one can usually find an employee who carries a job title of "systems programmer" or something of that ilk, whose background lies heavily in operations.)

In the US, however, no one I spoke to knew of a single redundancy resulting from the introduction of "no operator" type machines, and manning levels are traditionally higher there, with on average half as many operators again on each shift.

By the way, the consensus of opinion expressed by the Americans was that British operators are invariably more skilled and technically competent than their American counterparts.



Will the ME29 put you out of a job? — not if the US experience is anything to go by.

If all the crashes happen during the same shift, watch out for a rat!

ONE of the joys of working as an operator on night shift is the possibility that all the work can be finished before the day shift is due on. In such circumstances, it is usual to find that some, if not all, of the night shift get the chance of an early night (morning).

But there are other causes of packing up and going home early. A growing number of sites is finding that full engineering cover on the evening and night shifts is an expensive luxury, and these sites are opting for prime shift only maintenance.

So if the machine goes down in the middle of the night, the orders are usually, if you can't fix it yourself, and you've tried all the frigs in the book, wash up the coffee cups, put the cat out, and go home.

While operators as a breed are trustworthy and honest (I), there will always be a black sheep somewhere, just waiting for the chance to do something devious.

I've known, and I'm sure you have too, operators who "accidentally" stretched tapes just past the BOT marker. These tapes just happen to be the only copies of a brought forward file, the failure of which means that the six-hour job which would have kept you there all night can't be run.

Such incidents are few and far between, as they must be, for even the dimmest of operations managers should be able to nose out a rodent if all the large systems run overnight fail more often than those run on the day shift.

One site of my acquaintance had prime shift only engineering cover, and a go-home-if-it-breaks rule. Sure enough, the machine fell over more often on nights than the

After several weeks of fruitless diagnosis, the regional support man who had been called in by the confused site engineer exclaimed in despair:

"Well, if it isn't any of these things, it can only be an operator vandalising the machine." He meant it as a joke, but checking showed that all the faults occurred when one particular shift was on nights.

Stationing himself in a secluded corner, where he could get a good view of the machine room, the engineer waited. As the evening shift drove off into the night, he saw the suspect shift leader enter the room, go up to the CPU, open the covers, and...

The engineer grabbed the shift leader just as he was about to connect the PPI history across the processor backplane.

3rd-party maintenance is big business

THIRD party maintenance organisations are thriving in the US according to John Hartnett, director of planning and development for Cleveland-based TRW Inc.

The service and maintenance of computers across the US is estimated to be worth \$8 billion a year, and at least one eighth of this total is handled by third party contractors.

TRW has built up to a \$140 million turnover and has probably the largest share of this increasingly lucrative market.

Hartnett believes that the private computer maintenance industry is destined to grow at a rate of 12% over the next few years, with some manufacturers getting in on the act and offering service contracts on their rivals' equipment.

"This share is sure to grow," he says, "because the computer industry is still proliferating and diversifying at a bewildering pace."

Next in size to TRW is Sorbus, a subsidiary of computer manufacturer Management Assistance. Control Data, General Electric, RCA and Western Union are all involved in private maintenance to some extent. In addition to the big guns, there are an estimated 500 "one man and a dog" organisations scattered across the continent.

Hartnett cites the diversification of the computer industry as the main reason behind the mushrooming of third party maintenance companies.

"Every company of any size soon found itself using computer equipment used by half a dozen different manufacturers," he says. "The company had a maintenance contract with every manufacturer. Sometimes these added up to almost as much as the computers had cost. Having to call a different piece of equipment was a nuisance."

"It soon became apparent that someone was needed who could service most equipment in the way that a good garage can service most cars."

The scale of TRW's operation can be judged from its statistics — 200 service centres throughout the US, and a fleet of 2,000 company cars for the engineers' use.

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Who's the boss these days

IN the light of shift leader Ralph Ackad being sacked for allegedly exceeding his authority, I found myself wondering just how much clout the modern-day operator has. A few years ago, the shift leaders' powers didn't stop far short of sentencing errant programmers to death, but it would appear things have changed.

Or have they? What changes have you noticed in the last few years? Does your word carry as much weight as it did? Come on, let me know what's happening to all you operators out there.

01-681 3036

The man who plans to do away with programming

ARNOLD ARNOLD is not an ordinary name. Neither is the man.

Known just as Arnold to his friends, he has set out with the aim of demolishing the computer industry as we know it and rebuilding it on what he believes is firmer bedrock.

He has announced the discovery of what he calls the general systems computer program generator. This, he claims, will eliminate the need for any software programming, although it will not dispense with human value judgments.

Arnold makes the further extraordinary assertion that his generator is a perfect model of the mechanical aspects of the central nervous system.

Just for good measure, he also claims that the algorithms and expressions embodied in his systems generator define the Unified Field Theorem — the relationship between universal processes such as gravity, electromagnetism, nuclear interaction and time.

Einstein identified this theorem, but was unable to establish it.

Such astonishing assertions clearly need looking into, so I went

along to speak to the man whom some regard as a great genius, others as a crank. I was confronted with a powerful personality who expresses views lucidly and eloquently about sex, God, politics, and in particular his general systems algorithm.

The discussion was fascinating — and he certainly did not strike me as a crank.

But Arnold still has a lot to prove, for he did not show me the mathematics behind his system. Hardly surprising if his claims are genuine — it would be a plagiarist's paradise.

All I can say is that he has a caucus of close confidants who are familiar with his mathematics and believe it to be correct.

The rest of us will have to be patient.

Arnold explains that his system begins with a defined universe within which the application will operate. It then generates series of numbers and sums that include the possible operations and relationships for systems of given size within that universe. These sums are, of course, finite, but are supposed to represent closely the infinite series that would exactly



ARNOLD... "What is evidently being sought avidly by governments, academicians and industry is already available for £15 or so any day or night in Soho."

model the system.

The big difference between his system, and conventional ones, he emphasises, is that it offers not one answer but two — a subjective one and an objective one.

"It shows how the human nervous system and brain, or a computer, can reduce the sum of all possibilities within any defined environment to two options, or option groups," he says.

It is then up to the human recipient of the computer's wisdom to determine which of the two options is correct in the instance in question.

Arnold gives as a simple example of his system algorithm in action the game of noughts and

crosses played on a two-dimensional three by three board — nine squares altogether.

Arnold's system algorithm generates the sum of all possibilities both rational and irrational, which he says includes the intentions of the players. The sum includes all perfect and wrong moves and their redundancies within the finite series that characterises the game, including cheating. The total number of possibilities then comes to 618 billion, just for noughts and crosses!

The system reduces all these possibilities, eliminating redundancies to just a few key games characteristic of noughts and crosses.

The perfect game is, of course, a draw. Arnold makes an interesting observation on this, pointing out that there are altogether 45 possibilities exercised by both players in a noughts and crosses game played to the last move. There are nine choices for the first move, eight for the second and so on ($1 + 2 + \dots + 9 = 45$).

The first player enjoys 25 of these choices (every alternate number starting with nine), the second 20. "The first player therefore has five more opportunities to make a mistake than the second," he says, given that the draw is the perfect outcome.

For Arnold, the computer will never be any more than machine

that can sift quickly through a plethora of possibilities. He has no time for the "cranks" who promise us computers that will compute together.

Of people who make such extravagant claims, he wrote in the Guardian recently: "What is evidently being sought avidly by governments, academicians and industry is already available for £15 or so any day or night in Piccadilly or Soho and, for a slightly higher amount, in Mayfair and elsewhere."

So there we have Arnold — crank or genius, possibly both? Nevertheless a provocative man who will stimulate a great deal more debate.

by Philip Hunter

What will it cost to make your next computer a fail-safe one?

How about an extra 2% on the bill?

Recently we asked some computer users if they'd like a computer with resilience. The ability to bounce back quickly after going down. A bit like asking a Managing Director if he'd like a guaranteed profit!

Not surprisingly, they all answered "yes".

Then we asked if they'd be willing to pay a lot extra for it. A resounding "no", from all but a few special cases. Again, we didn't fall off our chairs in astonishment. In fact, we had confirmed our suspicions that people want their money's worth from the computer hardware they buy.

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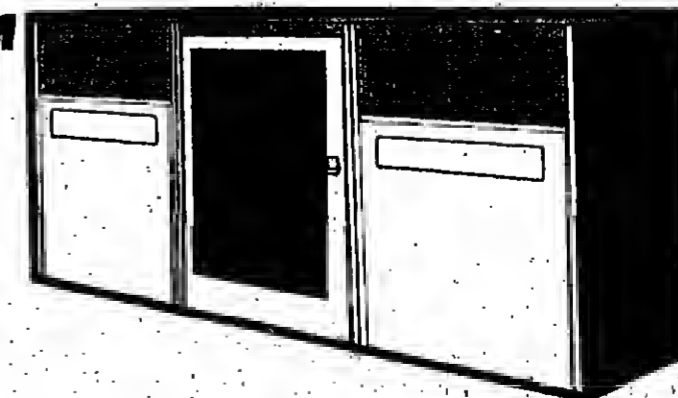
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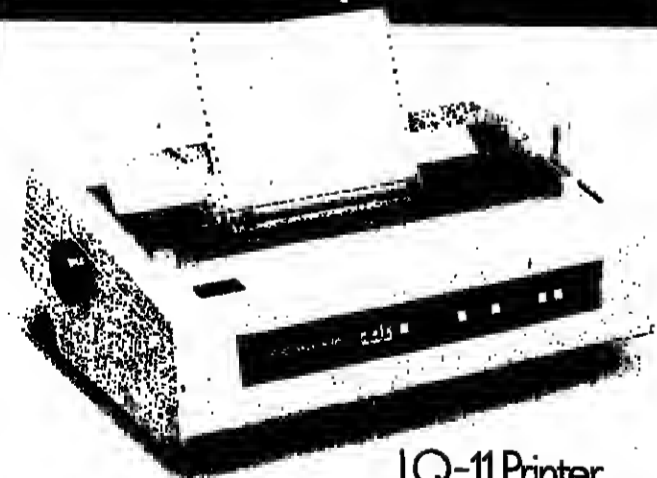


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PLESSEY PERIPHERAL SYSTEMS

It's a long and steep road to computer wisdom — especially if you're blind

COMPUTER programming has less barbed wire fences around it than most professions for blind people, but there are still problems. For although there are now many Braille terminals around, they are still limited in scope, and many are not all that reliable. It is particularly disconcerting for blind people when they encounter unexpected misprints and page throws.

Terminal rooms may be less hazardous places of work than many for blind people, but there is still the problem of getting there, and then avoiding briefcases, chairs and sandwich boxes left inconsiderately in the middle of the office floor. Surprising how easy it is to lose confidence when you keep tripping up on things.

Add to this the fact that blind programmers have to remember a lot that the rest of us can inspect on paper, and it is clear that their road to computer wisdom is indeed long and steep.

Tony Stockman of Blackburn, who is one of the first blind people to gain a first class honours degree in computer science, makes light of these problems.

He will return to Bradford University in the autumn to work for a PhD in medical computing. "I will be doing software to analyse heart rate variability in man," he says. "This will be based at Bradford Infirmary with data from real patients."

This work will involve reading electro-cardiograms, which will highlight another problem facing blind computer users, the lack of good graphics output.

Stockman explains that he is hoping to liaise with Bradford University on a project to produce hard copy graphs in Braille for blind users. "This may be specific to my work, but hopefully something generalised," he says.

Could this be yet another example of a marketable product emerging from specific university research?

Stockman suffered problems with the Braille terminal used for his degree course. This was a Sagem terminal, which produces hard copy Braille output. "It wouldn't line feed and kept inserting odd paper throws," he says.

As a result, Bradford is looking at other Braille terminals, including Versabril, which produces soft copy Braille displayed on a screen. It is the equivalent of a VDU, and particularly useful for editing text or stored programs.

Such everyday nightmares as taking exams need special arrangements for blind people. For Stockman, the text of the exam papers was fed into the computer and then dumped in Braille.



STOCKMAN... Liaising with Bradford University to produce Braille graphics output.

He took the exam in a room of his own, using a portable Perkins Braille typewriter, then read his answers from the Braille copy he had made on to cassette. "I was allowed an hour extra plus reading time," he explains.

The filling of Stockman's four-year sandwich course was a year working for Rolls Royce in Bristol. Here he gained experience of a

wide range of hardware, including Digital Equipment, IBM and Control Data. "This was the main contributory factor to my first class degree," he says. "I was a good average for my first two years, but much better when I came back for the final year."

"Tragically, at least on paper, the sandwich course has now been scrapped."

PUZZLER

61 52 63 94 46 18

GIVEN the fact that the five "intervals" (between each pair of adjacent numbers) are not relevant to the problem, on what logical basis has the sequence been assembled? See page 59 for solution.

Principles of Infotecture—8

Technoscopes vital in system design

THE Eighth Principle of Infotecture states: "The art of system architecture is so complicated that we must be able to analyse the design status, relative to our design goals, from many levels, from many conceptual points of view, and at many points in time during development."

I like to call the tools used for such design analysis "technoscopes".

Technoscopes are conceptual tools for helping us to understand many aspects of a system. A well-known analogy to the Technoscope is the chessboard. Imagine playing successful chess with only the list of moves to guide you, while your opponent had a chessboard to evaluate the position.

Another well-known Technoscope is the decision table. Per charts and even "a-squared charting" developed by Lano (published in the North-Holland TRW series) are Technoscopes for analysing system design situations.

I would like to argue here that we need several more such Technoscopes if we are to play the game of system design successfully.

A dramatic illustration of the need for such Technoscopes is the

account by Barry Boehm of TRW Systems where he tells a detective tale of trying to find the reason for an apparent lack of programmer productivity.

Analysis of lines of code produced, compared to lines of code delivered on their projects, yielded the startling fact that 180 lines were produced for every 100 actually delivered.

The cause was rewriting of the code to meet tough contract specifications for performance and other attributes.

But the code rewriting was not due to sloppy programming as you might expect. It was primarily due to faulty design specification, not at the lower levels of module and logic design, but at the higher levels of the system architecture specifications.

The basic cause was incorrect and particularly inadequate design technique specification. Maybe 30 design decisions had been made already, but another 20 or so were really needed to give the system the properties required by the contract.

The cause of the "bad design" was not bad designers — no more than it would be the fault of a chess team who lost if they were forced to play without chessboard visuali-

sation.

The cause seemed to be that when a few dozen high level decisions had been made for a project, nobody was really able to see the weak points in the design. There were too many techniques specified, and no systematic way of relating them to the contract requirements.

TRW developed a "Chessboard" (Boehm IFIP proceedings 1974 or Gilb: Software Metrics if you want to see his examples of it). They called it a "requirements/properties matrix". I have since modified the concept in minor ways and included it in my Design by Objectives toolkit (Function/attribute table). It is remarkably similar visually to a chessboard, but is simply a checklist of how the planned techniques of design impact the requirements. It leads to such a detailed and systematic analysis of the design that you are more likely to spot weaknesses in the design before you begin to code it or promise someone a delivery date.

That was the result at TRW. The rewriting of code was largely dropped when the requirements/properties matrix analysis was taken into use. The people were the same, but they had a better

technique. The cause of the "bad design" was not bad designers — no more than it would be the fault of a chess team who lost if they were forced to play without chessboard visuali-



Tom Gilb is an independent consultant, lecturer and author on computing topics.

Technoscope than they ever had before.

My experience is that most system designers worldwide are currently untrained in the kind of Technoscopes that would help them analyse the quality of their own work at early stages. We are therefore forced to discover our design inadequacies at later stages, where the cost of fixing things up is one or two orders of magnitude greater. And we don't, as a rule, have the time to do things over again.

It is the responsibility of systems and project management to seek out adequate Technoscopes to ensure that their people are trained in them and motivated or required to use them.

Failure to do this is failure to manage technology.

Tom Gilb

DOWNTIME

Long distance problems of the lonely hearts

INHABITANTS of the Falkland Islands are turning to the important issues of life now that the squabbling Argentinians have been evicted. One of these issues is sex.

A young Falklander has taken desperate measures by sending his vital statistics to Dateline International, the London-based computer dating company.

Dateline normally does two things for new members of its lonely club. First it performs a computer run to find a list of compatible members of the opposite sex. It sends this list to the new member, who can then go into action.

Second, Dateline adds new members to its database from which suitable partners for other members are selected by the computer. Therefore a member has two ways of finding a date — he/she has a list of prospective

partners to approach, or he/she may get an offer that can't be refused from someone on whose list of partners he/she is.

Our Falklands man will, in common with others in remote parts, receive only half the service, in the belief that people do not make love by teletype. Therefore they get a list of partners, but do not go on the list of other members of Dateline.

But could not our Falklander find a date at home the long-haired blonde for which he asked Dateline?

Currently with the influx of UK soldiers, I should think the residents are having a pretty rough time," replies Fo Foundation of Dateline.

Truly Dateline is reaching parts that other computer dating agencies do not reach.

The space in technology

WHILE the US space program is often vaunted as the leading edge of technology in its many aspects it seems that this cannot be said for the components it sometimes uses. The space shuttle Columbia might be the ultimate in get-you-there-get-you-back transport technology over astronomical distances but in the fast-moving world of microelectronics it is horribly out of date.

For example, National Semiconductor, which is a large supplier of chips to the National Aeronautics and Space Administration (NASA) which is responsible for building Columbia, is keeping two of its old production lines open to supply Columbia. The company would have ceased production on these

items a long time ago, but for NASA.

The problem, as one NASA man said, is that NASA was tried and tested products, and not the latest whizz bang chips.

But NASA has a record of being a bit behind the times in computer technology. In 1969, at the time of the first moon landing, Mission Control in Houston was using IBM 360/65s. The current IBM processors at the time were the 370 series models 145, 155 and 165. With all the publicity that the moon shot generated, IBM's bosses locked in the fastness of their Armstrong retreat were literally praying that the journalists asked about the computers.

Comparisons are odious

ADVERTISEMENTS for computers are often disfigured by the use of vague performance comparisons. But the phrase "CPU Utilisation 181% better" used in an advertisement for a Cincom computer comparing it favourably with its IBM equivalent, proved too vague for the liking of the Advertising Standards Authority.

The basis of two complaints to the Authority about this advertisement was not that such comparisons are meaningless and irrelevant, but that the figures were presented in a misleading way.

The gist of the benchmark result was simple: Cincom's CPU is nearly twice as fast as IBM's on this particular test. Why could the advertisement not say this? Sometimes the subjective adjective is more informative than the objective statistic (Chad's sixth law).

And how's this for a peculiar choice of number for a comparison from an advertisement for a graphics unit? "It has been designed and manufactured by Lowe Electronics and increases the graphics resolution capabilities of Genies seventy-three fold."

Seventy-three? Either that is carrying accuracy to the point of absurdity, or it is an attempt to establish authenticity by attention to detail.

Back to basics

THE Middle East is a land of contrasts (it says in my book of clever opening phrases). One of Egypt's largest banks, Banque Misr, is moving straight from manual accounting methods to an online system linking its 200 branches. The machine room itself represents a multi-million pound investment, and comes complete with its own standby generator.

But what of these contrasts, I hear you ask.

The diesel fuel for the standby generator was delivered by donkey and cart and pumped by hand.

Problems of cubism

THE Rubik Cube is just about the most intelligent test there is. It will tell you if a person is logical, practical, creative or inept, according to the initial reaction to it.

A Rubik Cube in its pristine state has each of its six faces split into nine smaller faces of one colour, a different colour for each main face making six colours altogether.

The small faces can be redistributed about the cube by rotating any one of the six main faces relative to the rest of the cube. Mathematicians call this the ability to rotate about any one of the cube's three mutually perpendicular axes.

The problem usually asked is to bring the cube back to its pristine state with each face made up of small faces of the same colour after having jumbled them up.

I tell you, it's a nightmare.

But back to the intelligence test. The logical response is to try and do the cube the proper way. But the practical man will peel off the small colours stuck to each of the small faces and stick them back on to make the cube look as if it had been solved properly. This may seem like cheating. But after you have like cheating. But after you have like cheating. But after you have like cheating.

The creative response is to take the cube to bits to see how the mechanism works. But the intelligent response is to pick up an axe and smash it to bits.

Where are you?

THROUGH my incompetence we have lost the addresses of two people who recently submitted successful entries for our 1984 All That column on the machine page. One of them is... Carole Titchmarsh, head Reading, the other is Norman Hilton of High Barnet, Herts.

Would they both please send in their full addresses to the editor so we can send them their £5?

Chad

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, July 29, 1982

Challenge of the Telecom sell-off

THE sale of British Telecom will inevitably be an election issue. But both government and union opinions agree that the battle is likely to be over by the next election, and the issue could be the grounds for a direct challenge to the government's rule.

The government is enjoying a peak of popularity and is probably as well placed as ever to resist such a challenge. But how much support will it enjoy for its plans to hive off BT, and with how much justification?

Both sides regard the telecommunications network as a national asset and want to see heavy investment in expanding and modernising it. In the union view the money should come from the government or as a loan from the City. The shares, when sold, will undervalue the assets and divert investment funds into dividends, starting an irreversible decline in network performance and causing steep price increases, the unions say.

The government says it cannot allow BT to borrow while it is a nationalised industry because that would be inflationary. Self-funded investment, it asserts, is actually customer-funded, which must mean that prices are unnecessarily high.

□ □ □ □

BT welcomes the prospect of freedom from governmental control, but urges the government to think carefully about the far-reaching consequences the sale could have.

One of the problems that existed when BT was a monopoly was that it was naturally reluctant to offer alternative services that competed with one another. This may not change in the liberalised environment, except that in meeting competitors head-on it may find itself in the position of offering separate services which also happen to compete with each other.

It also may not change with BT becoming a privately-owned company. But as part of its reorganisation programme to make it more commercially-minded, BT is preparing to split into 80 or 90 business units. Most of these, 61 in fact, will be regional network administrations, six will be divisions of BT Enterprises, four are the recently formed parts of BT Enterprises, and one is Network Special Services, which installs high-speed digital links. That still leaves room for one or two surprises, and scope perhaps for services which will compete with one another. This could enlarge the number of outlets available to designs from Martlesham Laboratory, which Industry Secretary Patrick Jenkin described as one of the attractions of BT to investors.

One of the results of Martlesham's work has been Prestel. Is that another major attraction to investors or is it going to disappear?

□ □ □ □

A privately-owned BT would be inclined to step up imports.

This is one of the government's concerns, and it plans to organise reciprocal arrangements with other countries to ensure UK exports find a market. But more important is the concern that growth in telecommunications services should help to bring greater efficiency to all other industries, stimulating exports of all kinds.

It has been suggested that efficient worldwide telecommunications could play a significant part in putting an end to large-scale starvation and pestilence. On the other hand it has been suggested that marked differences in national capabilities in information technology could spark off the third world war.

If selling BT will have the far-reaching consequences that its management and the government for different reasons suggest it will, we have two years at the most in which to thrash out the issues and plot the course to salvation or disaster. Now is the time to stand up and be counted.

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by Tony Phillips of Bury, Lancs, who writes: "I've been estimated that computers could answer virtually any question that a human being is likely to ask. The trouble is we're not asking enough to keep the world's computer data banks fully occupied."

Manchester Evening News

LETTERS

Doctrine of information technology

I THINK I caught sight of some of Philip Conford's "technological Jesuits" (CW, June 24) at a quasi-religious conference in Cambridge last week. They wore IT ties and festooned Robinson College with the DoI propaganda leaflets and sticky IT graffiti. On Thursday night two mysterious characters appeared from somewhere, and dined at the conference in navy blue blazers with woven IT badges. Defenders of the Faith? They were never seen again. Perhaps they were content.

The air was already heavy with doctrinal proselytising:—

"Teachers have to be converted... teachers have to be changed... what we've got to get over... of course I'm already preaching to the converted here". Though the conference was officially entitled Educating the Information Generation, there was much evidence to suggest that the real question was: How do we soften up the recalcitrant educational world out there to the doctrine of Information Technology?

In the face of such onslaughts, the educational question is not whether we should present children with the doctrine of IT —

after all the IT82 leaflets are a cheap source of curriculum materials. The significant educational question is a pedagogical one. If we are concerned with educating the information generation in a liberal as opposed to an illiberal society, how does the teacher act as "interface" between the young and such proselytising information as that contained in the doctrine of information technology?

BEVERLEY LABBETT
Centre for Applied Research
in Education,
University of East Anglia

Needs of silent majority

THE important point about human rights raised by your correspondent (CW, July 8) lost its force through the fact that he/she chose to remain anonymous, thus declining voluntarily the freedom of expression which is the foundation of the human rights case.

The UK Council for Computing Development exists to promote the effective application of information technology in improving the living standards of the world's poor. The exact words (from the Memorandum of Association) are "... for the benefit of the public in developing countries ..."

One can take the view that assistance to certain developing countries is not "for the benefit of the public", and private individuals will properly decline their services on such grounds. For the Council itself to take this line, however, would be high-handed and paternalistic. Unlike some charities and development agencies, the UKCCD is not empowered to make political judgments of this kind.

It would have been possible, perhaps, to include such provision in the original Memorandum of Association, but only at the cost of much contentious argument and the risk of inordinate delay. The UKCCD should be free to further its aims, just as commercial enterprise is, wherever it is legal.

The issue comes back to legislation — it is for governments, and governments alone (Parliament, in the UK case) to assess whether a particular trade with a particular nation is on balance morally right or wrong, and if necessary to legislate against it.

Unfortunately few governments — certainly not ours — are bold enough to take unilateral action on moral grounds. What is needed is an international authority for IT, with membership benefits sufficient to attract a majority of countries but with powers that include the policing of computer use within its member countries. Given the reluctance of successive UK governments to frame any form of data protection legislation even within the UK, the outlook for such a body is not rosy.

But that is a reason for intensifying the call, not abandoning it, and for supporting organisations such as the World Development Movement and its affiliated movements abroad, which together are fighting to make national governments more aware and more responsive to the needs and rights of the silent majority — the world's poor.

IAN SHEARER
Database consultant
Belling,
London

'NCC does not take sides'

ALAN SIMPSON correctly notes (Focus, CW, July 1) that the National Computing Centre is increasing its efforts to assist the services industry in the further improvement of its marketing skills. This reflects our active support for the objectives of Cosit, the services industry training board, and the excellent work done over the years by the CSA.

Where I take issue with his comment is in his identification of two opposing "sides" where it is necessary for a body such as the NCC to elect which it is to champion. The characteristic of good marketing and professional selling is that it benefits the vendor and the purchaser. It is strongly in the interests of the user to see an im-

provement in the standards of marketing in the industry.

I wholly agree with Simpson in his identification of a divergence of interest where bad selling and an unprofessional approach lead to the practices to which he alludes. May I take this opportunity of assuring him that avoidance of over-selling and inappropriate methods is exactly what all of us engaged in the Cosit initiatives are seeking to achieve.

In so doing we seek to benefit the whole computing community. That is the only "side" which the NCC recognises and champions.

DAVID FAIRBAIRN
Director
National Computing Centre,
Manchester

Linenware File

by Don

YOU KNOW WHAT, FRED'S SYSTEM REMINDS ME OF?

SUNDAY MORNING IN PARIS...



...ALL BELLS AND WHISTLES...

...AND NO WORK DONE!



Defining computer science

ACADEMIC computer scientists have long argued that computer science is a mathematical discipline. There is the emphasis on "structured" programming, program verification, and similar fads. It seems as if the argument has been accepted by some polytechnic authorities.

Lyn Anill (CW, July 8) complains that "computing" has now been grouped with mathematics as a non-laboratory subject in the allocation of resources. Mrs Anill has now grasped the consequences of the actions of her computer science peers. Professor Dijkstra — one example among many — claims that the "real" computer is not the physical machine we see, but the machine you think about: the dream, machine. Unfortunately, when computing is moved from an applied discipline (where it belongs) to a mathematical discipline using dream machines, dream machines are cheaper than physical machines.

To observe, as does Mrs Anill, the use of the computer and microprocessor laboratories by her students does not distinguish her students from students in many other subjects. My students (in social science) and many other students (eg business studies) use computers and microcomputers. Social Science and Business Studies are not "laboratory" subjects, and do not tend to use the inflated term "laboratory" to describe microcomputer rooms.

Computer science should try to decide upon what it actually is, and not try to play two games at once.

Dr BORIS ALLAN
School of Sociology
Manchester Polytechnic

The Editor welcomes letters commenting on subjects published in Computer Weekly at an original topic. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

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FOCUS

Exciting times for UK's first data city

THE IT authorities have had an uphill task promoting their wares to the country this year, competing for attention with such activities as the South Atlantic war, the World Cup, Wimbledon, the Papi visit and the Royal birth.

The IT organisation may be down but it is far from out. Its latest enterprise is to declare Milton Keynes an information technology zone. Until now, Milton Keynes has remained almost unknown and untroubled, partly through a general lack of local name and direction signs. But it will not be able to complain of shortages in communication links, paths and networks.

British Telecom is installing a fibre optic telecom cable throughout the area. The wideband Fibrevision network

apparently will permit the routing of five television channels, FM radio, local pay TV, Prestel videodata and teleshopping systems into selected homes.

It could be that the planners hope to encourage DP centres to move into the location. The message from the US certainly backs the view that many DP centres are finding the high rents and inadequate space in city centres a strong reason for moving further afield. But New York-based DP Facilities Inc believes that the costs involved in relocation are seldom feasible. It quotes \$2 million as the price for moving a twin IBM CPU plus matching peripherals from a city centre to a more rural site.

Balancing the removal cost sheet, however, are the more positive factors of additional space and

communication facilities. Frost and Sullivan, noted compiler of computer industry facts and figures, reports that data communication growth rates are expanding at 22% a year. It is becoming as easy to distribute data processing power across the country as it is across a building.

Remote data terminals, often backed by microprocessors, serve packet switching message services, voice/data transmissions, electronic mail and facsimile systems. No longer is it necessary or desirable to locate the data centre in the basement of head office or next to the corporate mail room.

There are certainly many beneficial factors for the DPM operating outside the city centres. With less job competition, computer per-

sonnel become more settled and possibly less demanding in terms of salary and fringe benefits.

Should Milton Keynes become the nominated data city of the UK, the local inhabitants can look forward to an interesting technological time. Without doubt, the local doctor will have been issued with a microcomputer system under the government's micros for GP scheme. Factories and shops will be automated under a further State enterprise.

NCC micro vans and trains will continuously circle the area distributing BBC Accorns to prospective users, while international micro vendors such as CMI, and training centres such as ITB, will establish operations on every corner.

Alan Simpson

10 YEARS AGO

From Computer Weekly of July 27, 1972

A COMPLETELY new online data entry and enquiry system, called Screenplex, which was designed and developed at Honeywell's engineering centre in Hemel Hempstead, was a major feature of the company's introduction of the system 700 range of business microcomputers in the UK. The government's support for ICL did not involve any increase in the government's shareholding in the company, announced Minister for Industrial Development Christopher Chataway. In addition to the £14 million already allocated to ICL, the company was due for another £3.5 million later in the year. A working party was set up by the British Computer Society to examine degrees in data processing.

Optical mark readers were being developed for the hospital environment by the Department of Medical Computing at the new Charing Cross Hospital.

Kislawort Benson ordered a 240K IBM 370/135 for installation in a new computer centre.



Cliff Dilloway is an independent consultant specialising in accounting software, taxation and payroll.

to decide for every session which account numbers it would be most useful to have as standard.

The computer does what it does best and the human operator does best too. Acknowledgments are due to KCS (01-680 7474) in whose accounting system I first saw this feature demonstrated.

Cliff Dilloway



Kalamazoo 1 hold the trophy aloft flanked by Commercial Union (left) and third placed CMC.



Kalamazoo pulls out all stops to send three teams to Europe

The two events held immediately before the lunch interval saw the Kalamazoo women oust Barabets Radhroke Hall from the number one slot. The basketball team won two teams and their Number Ones tying for the lead: Digital with Sue Richardson, and Bank of America with Jane Holmes. Bank of America can still lay claim to having the noisiest supporters who were, if anything, even louder than

PMSL women pulled against Gloucester County Council and went down to them two ends to nil. Barclays International also made no mistake and put PMSL out of the competition with another 2-0 victory.

The semi finals of the men's competition were between the Inland Revenue and Thorn EMI, and Barclays International and BL Systems. The tax men defeated their opponents 2-0, and Barclays lost BL out. In the final after a hard fought match, the Inland Revenue took the championship 2-0.

Jeff Harrison and the rest of the Kalamazoo 1 team put in a terrific finish to oust Commercial Union from the top of the table. CMC finished third, Kalamazoo 2 fourth, and the remaining two

October 10 is the date set for the European final at Brussels, where the winning teams will be up against competition from Holland and Belgium. Computer Weekly will be there to report on the meeting, and, with any luck, to join in the celebrations again.

Computer Weekly thanks Commodore Computer for providing a system to calculate results at each

WOMEN
 Delilah Sue Whitcomb, Debbie Bosch, Tonia
 Franklin, Sue Ovarcum, Carol Sotinen
 Seggi Louise Collier, Theresa Smith, Rosalind
 Moore, Wendy Buckland, Flora Scott
 Kaye Ann MacLennan, Margaret MacLennan, Dawn
 Hambling, Nicola Ellis, Francesa Mann, Nicola
 Robinson
 C. Camberidge, Sally Noel-Johnson, Sue
 Beaman, Joanne Wallis, Karen Kirby, Julie Mur-
 phy
 British Mail Order Jill McCutley, Kate Oomeny
 Mandy Whitnigrove, Linda Wright, Sue Eyre
 B.L. Systems Jane Smith, Sharon Jones
 Caroline Mann, Linda Richards, Pauline Everett
 Ann MacLennan, Anne MacLennan, Margaret
 Amies Robinson, Julie Davis, Ann Hardy
 Bink Xerox Ann Terry, Ann Ruperick, Fay
 Campbell, Jaci Joy
 Bank of America, Jane Holmes, Christine Row-

23	Veteran (NP1 2)
24	Paul Bantlin (Ford Motor Co)
25	David Bennett (Gonzalez Byss)
26	Mike Glanville (Barclays Ghouls)
27	Veteran (Lagay & General 3)
28	Veteran (Raynors Mac 2)
29	Niel Norland (Sandvik)
30	Karar Davarwal (Rank Xerox)
31	Veteran (L.B Barnett 2)

WOMEN'S TEAM

Rank	Name
1	Kalamazoo
2	Legal & General 1
3	Barclays Redbrook Dixons

7	6	10	11	11	8	3	12	5	5	64
6	4	7	11	8	7	13	8	7	61	60
9	6	10	11	8	8	7	7	6	59	59
9	9	8	4	11	2	10	7	7	6	59
7	7	10	7	9	5	7	7	7	57	57
7	7	9	6	7	6	7	3	7	9	55
2	5	2	5	8	5	5	8	4	9	48
2	6	10	5	5	5	2	6	5	6	45

RESULTS

Points					Total				
25	38	33	42	42	32	35	37	389	
27	32	27	45	45	30	30	37	265	
35	30	30	36	39	28	32	32	252	
26	23	41	33	33	21	24	28	229	



RE
Randy Smith hurls the ball.



Tugging to victory

PMSL women pulled against Gloucester County Council and went down to them two ends to nil. Barclays International also made no mistake and put PMSL out of the competition with another 2-0 victory.

day. Watson won the Individual heat to move into ninth place. Jeff Harrison and the rest of the Kalamazoo team put in a terrific finish to oust Commercial Union from the top of the table. CMC finished third, Kalamazoo second, fourth, and the remaining two against competition from Holland and Belgium. Computer Weekly will be there to report on the meeting, and, with any luck, to join in the celebrations again.

Computer Weekly thanks Commodore Computer for providing a system to calculate results at each

GCS Cambridge: Sally Noel-Johnson, Sue Benham*, Joanne Wallis, Karen Kibby, Julie Murphy
British All Order: Jill McHuty, Kate O'neary*
Mindy Walwright, Linda Wright, Les Eyre
AL Systems: Janice Smith, Sharon James*
Caroline Mann, Linda Richards, Pauline Evertoe
Kalamazoo: Alison Grant, Chris Athanasuch*
Amber Robinson, Julie Davis, Ann Hardy
Bak Xerox: Ann Terry, Ann Fitzpatrick, Fay Campbell, Joce Fog
Bank of America: Jane Holmes*, Christine Roosa

WOMEN'S TEAM

Rank	Name
1	Kalamazoo
2	Legal & General 1
3	Barclays Redbrook
4	Digital

2	5	8	7	5	8	4	9	48
6	10	5	5	2	6	5	6	45

RESULTS

				Points -		Total		
25	38	33	42	42	37	35	37	289
27	32	27	45	45	32	32	37	265
35	30	30	36	39	28	32	32	252
26	23	41	33	33	21	24	28	729

Standy Smith hurls the ball.

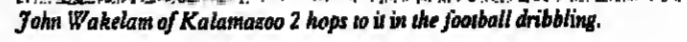


Left to right: Tony Tripp, Sam Johnson, Dickson M. Brown, Paul A. H. ...



Taking part in this year's UK finals

LISTED below are those who took part in the U. S. trials. An asterisk denotes the team captain.



How they finished

MEN'S TEAM RESULTS									
Rank	Team	Points					Total		
1	Kalamazoo 1	20	30	38	33	45	257	41	259
2	Commercial Union	33	38	42	36		201	42	249
3	CASC	23	30	40	42	33	34	25	241
4	Kalamazoo 2	23	29	26	33	43	31	26	236
5	Barclays International	28	30	34	42	18	29	32	235
6	Barclays Nordbrok	25	30	33	33		26	32	232
7	NFI 1	35	32	19	24	42	24	26	235
8	Legal & General 1	22	33	36	21	39	33	33	231
9	PMSL	26	36	26	27	39	16	24	233
10	Rouvenor Mac 1	24	28	37	30	29	21	24	224
11	Thorn EMI	19	29	31	27	36	21	23	217
12	British Aerospace	20	22	31	45	18	33	33	216
13	Heywood & Potts	27	24	21	33	36	26	17	209
14	Milford Household	30	20	25	21		27	22	186
15	Digital 2	24	24	32	21	24	30	21	200
16	Bell Systems 1	25	23	28	18	33	25	24	198
17	Barclaycard	23	20	26	21	33	26	24	197
18	Sheffield Insulating	26	25	22	39		28	26	196
19	Compucon	17	27	28	39	12	27	30	265
20	LB Lambeth	21	30	27	18	30	23	21	192
21	LB Bernet	30	20	24	21	12	32	19	26
22	Barclays Gloucester	22	21	16	39		26	24	24
23	Ford Motor Co	17	24	24	24	21	25	24	183
24	Butterworths	28	23	28	18	21	23	27	183
25	Routenear Mac 2	20	28	22	27	15	23	21	20
26	Rank Rexco	24	22	30	31		22	21	20
27	Legal & General 3	26	28	26	24	12	32	22	174
28	NFI 2	20	27	23	33	9	28	15	16
29	Sandvik	18	23	21	21	21	19	21	167
30	Gonzales Byers	11	22	24	6	17	16	17	145
31		16	24	15	15	6	20	25	127

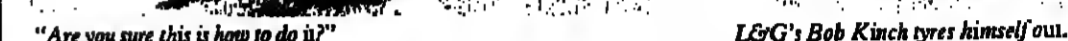
MEN'S INDIVIDUAL RESULTS							
Rank	Name	Points				Total	
1	Bob Kitch (Legal & General: 1)	10	13	13	9	12	86
2	Maicoln Shuttleworth (Kalsomazoo 2)	7	14	11	11	9	119
3	Mike Hewtree (Rowntree Mac 1)	7	11	14	10	8	115
4	Jeff Harrison (Kalsomazoo 1)	6	11	11	13	8	115
5	Pickdy Dodd (Ratcliffe Roadbridge)	7	9	9	7	13	124
6	Trevor Lloyd (PMSL)	7	10	13	13	7	124
7	Leslie Davis (Commall Union)	7	10	14	12	7	124
8	Dave Cross (NPI 1)	10	12	6	9	13	80
9	Michael Milne (St Barnet 1)	10	12	6	9	13	80
10	John Vernon (C.M.C)	7	12	8	14	11	76
11	Michael Milne (St Barnet 1)	7	12	8	13	11	76
12	Steve Viney (C/MC)	9	12	11	14	11	73
13	Frank Weaver (Thorn EM1)	9	12	6	9	12	73
14	Glyn Hesketh (Addison Household)	7	12	6	7	11	85
15	Russell Batten (British Aerospace)	7	10	10	10	8	73
16	Bill Edwards (Heywood)	7	10	8	7	12	73
17	Ian Turner (Digital 2)	9	12	10	7	8	73
18	Geoffrey Lewis (L.B Leach)	7	10	9	6	10	9
19	Hugh Nicolle (Buryley 1st)	7	10	11	6	4	9
20	Joe Lewis (B.L. Systems)	9	9	10	5	11	8
21	Jack Cook (Compower)	8	9	13	4	8	78
22	Kelvin Speggins (Buryley 2nd)	9	12	7	11	9	87
23	Rob Neumann (Batterworth)	10	6	10	7	7	91
24	Veteran (NPI 2)	7	10	11	3	12	5
25	Paul Batten (Ford Motor Co)	6	7	8	7	8	61
26	Dave Bennett (Gonzalez Bross)	7	11	2	4	13	7
27	Alkie Glynnville (Buryley 3rd)	4	11	2	10	7	8
28	Veteran (Legal & General 3)	10	8	8	4	7	76
29	Veteran (Rowntree Mac 2)	7	9	9	9	7	69
30	Neil Nustand (Sang 2)	2	9	6	7	7	39
31	Karar Dewarod (Rank Xerox)	5	8	7	5	8	4
32	Veteran (L.B Barnet 2)	6	10	5	2	6	45

WOMEN'S TEAM RESULTS													
Rank		Name	Points -										Total
1	1	Kalamazoo	25	38	43	42	37	35	37	32	28	28	
2	2	Legal & General 1	27	32	27	45	45	39	35	37	36	26	
3	3	Kalamazoo Radbroke	33	30	30	30	33	33	33	28	28	22	
4	4	British Mail Order	26	23	41	33	33	31	24	28	22	22	
5	5	Rassaua	20	30	29	24	18	15	20	18	18	18	
6	6	Bank of Ameriton	10	18	41	41	19	19	34	30	19	19	
7	7	Scienc	19	23	26	21	30	25	23	23	19	19	
8	8	Thorn EMI	20	33	19	6	27	29	20	20	17	17	
9	9	Kank Kerox	27	25	25	21	12	12	12	12	12	12	
10	10	GCS Cambridge	12	15	6	6	10	10	10	10	10	10	
11	11	Townhouse Mac	13	11	16	10	9	25	20	14	16	14	
12	12	Data 100	27	29	19	18	15	19	14	16	14	14	
13	13	BL Systems	22	22	15	12	12	12	12	12	12	12	
14	14	Segus	21	26	26	12	9	21	10	15	14	14	

WOMEN'S INDIVIDUAL RESULTS													
Rank		Name	Points										Total
1	1	Anne Barr (Legal & General)	12	13	7	15	15	11	8	15	9	9	
2	2	Blaire Perryman (Rassaua)	9	15	12	8	6	15	10	14	10	10	
3	3	Allison Grant (Kalamazoo)	7	11	6	14	11	8	8	9	9	9	
4	4	Sue Richardson (Digital)	9	12	14	11	11	8	8	9	9	9	
5	5	Allyllynn Pether (Kalamazoo Radbroke)	12	5	5	12	13	13	10	13	8	8	
6	6	Lea Bayre (Scienc)	6	13	6	3	7	10	14	10	12	7	
7	7	Will McNulty (British Mail Order)	12	12	6	6	6	6	6	6	6	6	
8	8	Sally Johnson (GCS Cambridge)	15	9	10	4	4	10	10	10	10	10	
9	9	Lea Carter (Scienc)	10	11	7	7	4	3	11	6	10	6	
10	10	Sue Howells (Thorn EMI)	15	12	7	2	4	3	11	6	7	7	
11	11	Jane Holmes (Bank of America)	5	11	5	14	4	4	4	4	4	4	
12	12	Angela Murray (Data 100)	4	10	9	6	5	5	7	7	9	9	
13	13	Angela Morrison (Segus/Mac)	6	10	9	10	3	7	6	7	6	6	

14	Sharon James (BL Oystons)	8	5	12	4	2	7	4	1	4
----	---------------------------	---	---	----	---	---	---	---	---	---

Boats are, from left to right: Medicine ball throwing; Hockey or football dribbling; Blaze Wheelbarrow relay; 400 meters relay; Football or Hockey; Sprint; Steeplechase. V denotes a team competing in the veterans competition, S a team in the small units section.



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Apple names MD for European operations

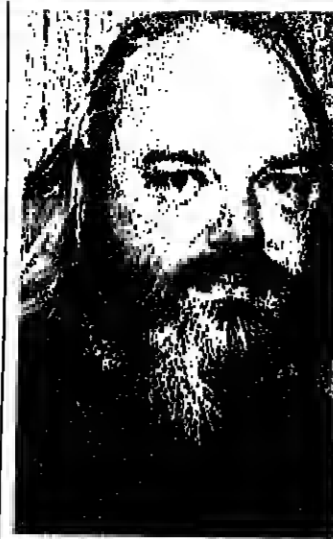
APPLE Computer has named Joseph O'Keefe managing director of its manufacturing operations in Europe. He will be based in Ireland, where the company has two manufacturing facilities. The main one is in Cork, established two years ago to manufacture Apple II and Apple III microcomputers for the European market. The other plant, in Millstreet Town, makes electronic keyboards and peripherals for micro.

O'Keefe was previously general manager of AT&T's Irish subsidiary Telexcom. He has also held senior management positions with General Electric in the US and its subsidiary in Ireland Ecco, and with Emerson Electric Company's Irish subsidiary, Ridge Tool Ireland.

Ian Durrell has been appointed to the new post of general manager of European operations for the software products group of Informatics General Corp. The European operations HQ will move from Geneva to London in six months time. Durrell joined the company in 1970 as a systems engineer.

Gordon Peake has joined Computervision as European manager, services and support. He was previously worldwide business manager with ICL.

Tudor Ellis has joined Time and People as bureau manager. He was previously manager of general services at Lowndes-Ajax Computer Services.



John Carolan has joined Altos distributor Logitek or technical director. He was previously with Rainsford, the computer subsidiary of the Guinness brewery group in Dublin, where he was product marketing manager. He will establish and head a software development unit to evaluate packages which will be marketed by Logitek.



Terry Buckett has joined Multicomputer as field service manager. He will maintain the company's M200 multicomputers in the field. Before joining Multicomputer, Buckett was European customer services manager at Computer Automation. He has about 25 years' experience in the computer industry including 10 years with ICL and three years with Eitel.



Roger Sondell will lead Consys Computer Services' sales drive, following the company's appointment as official ICL Trader Point distributor. The company will market systems based on the ICL Personal Computer, DRS 20 and System 25. Sondell has spent the last eight years selling with ICL and before that with BCL.

UK boss for Nokia

NOKIA UK, subsidiary of Finland's largest industrial corporation Nokia Oy, has appointed Peter Cox as managing director.

He joins the company after 10 years with Philips, which he joined as a senior salesman, going on to become a sales manager and then regional manager. In 1979 he became sales support group manager of Philips Business Systems, he became general manager for the Southern group, transferring to general manager of small business computers last year. By the time he joined Nokia, he had been promoted again to business development manager for the small business computer activities within the data processing division.

One of Cox's first announcements is the appointment of CEMA Business Services as the first Nokia terminal systems distributor in the North of England.

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For further details about exhibiting at the Northern Computer Fair, contact the Advertisement Manager, Practical Computing, Room 1310, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Telephone: 01-661 3500 Ext 3021

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Position in Company _____
Company _____
Address _____
Telephone _____

Just fill in this

Alan Russell has joined Multicomputer as business manager. He joins from Mannesmann Tally, where he was marketing manager, computer peripherals. Before that he spent 14 years with Burroughs, leaving as product promotion and industry marketing manager.

Ruthie Alexander-Morgan is launching a word processing service for software publisher Understanding Ltd. It is aimed at small businesses which would benefit from using a word processor, but cannot afford either the equipment or the staff. Details 01-450 1144.

Tom Leonard has been appointed development project director at Precision Software. He was previously an independent consultant. Nigel Lovett-Turner joins the company as finance director. He was formerly sales manager at Hamlet Computer Group. Colin Spencer, formerly with Leasco, has been named technical manager at Precision. Precision Software was formed recently by ex-Complan technical director John Trauer, to provide software for the Unix market.

Anthony Collis has been appointed divisional manager TV Systems, at Chubb Alarms. He was previously in marketing with Siemens.

Commander Nevill Porter is to retire as managing director of Mastiff Security Systems in September, but will remain on the board. After retiring from the Royal Navy in 1962, he joined Elliott Automation and became a founder member of BA Space and Advanced Military Systems. He launched Mastiff in 1972.

Geoff Coates has been named franchise manager for Creden Microsystems' newly-acquired Data General distributorship. He has been selling Creden Microsystems' products for the past three years and was previously the franchise manager for Zilog.

Heinrich Fricke, formerly with Perkin Elmer, has joined Atlantic Computer Leasing's sales operations in Northern Germany. Berardus Krusemann, previously with Mavic Lease, is responsible for sales in the Benelux countries.

John Patterson, formerly national sales manager with Apple Computer, has been appointed UK sales manager and marketing manager for Epson UK, with responsibility for the forthcoming launch of the company's new microcomputer range.

Kevin Graham has joined Bytech as components specialist. He was previously a product manager for BA Electronics.

DIARY

AUGUST 3
Data administration working party. BCS. Details David Stenton, 01-486 3947.

SEPTEMBER 8
OTL Gives Voice to Information Management. Meeting on OTL's Information Management Processor. Institute of Information Scientists WP and computer information systems special interest group. OTL, London. Tel Hele Harris on 01-229 5069.

COURSES

A ONE-DAY course for amateur or professional technicians who are interested in making or modifying aids and equipment for disabled people is being held in Milton Keynes on September 25. The course is said to be the first of its kind in the UK and it aims to familiarise technicians with different types of disability. Disabled people will be present to give their views as consumers. Topics include adapting microcomputers. Venue is the North Hill Professional Workshop, Milton Keynes. Enquiries to Castle Priory College, Thames Street, Wallingford, Oxon OX10 0HE. Tel: (0491) 37551.

ACCOUNTING Principles and Practice is a course designed to give accounting know-how to programmers and analysts. The workshop, organised by BIS Applied Systems, will be held on September 23-24 at the Park Court Hotel, London. It aims to show how accounts data is recorded and

SEPTEMBER 23-24
Information systems - analysis and design working party. BCS. Open University, Milton Keynes. Details Guy Fitzgerald, 01-854 2030, ext 377.

JANUARY 5-6
Viewdata. Conference on the state of the art. Institute of Information Scientists WP and computer information special interest group. Details Mrs Bird on: (051) 645 2000 ext 8611.

processed and will examine costing and budgeting as well as the production of financial statements. The course gives a background for the survey and design of accounting based DP applications and aims to extend the business knowledge of the delegates. Fee is £265+VAT. Details from Sarah Wall on 01-261 9237.

A PART-TIME version of the NCC Basic Systems Analysis course is being presented by the Polytechnic of Central London, starting in October. It will take place on Thursday afternoons/evenings for 30 weeks, and is intended for those who cannot attend a full-time course. Fee for the full-time version of this course is £1,200. Details from the Polytechnic of Central London, School of Management Studies, Polytechnic Road, London NW11 1AB. Tel: (01-494 8811) ext 250.

PRODUCTS



The Q850 from Quantec.

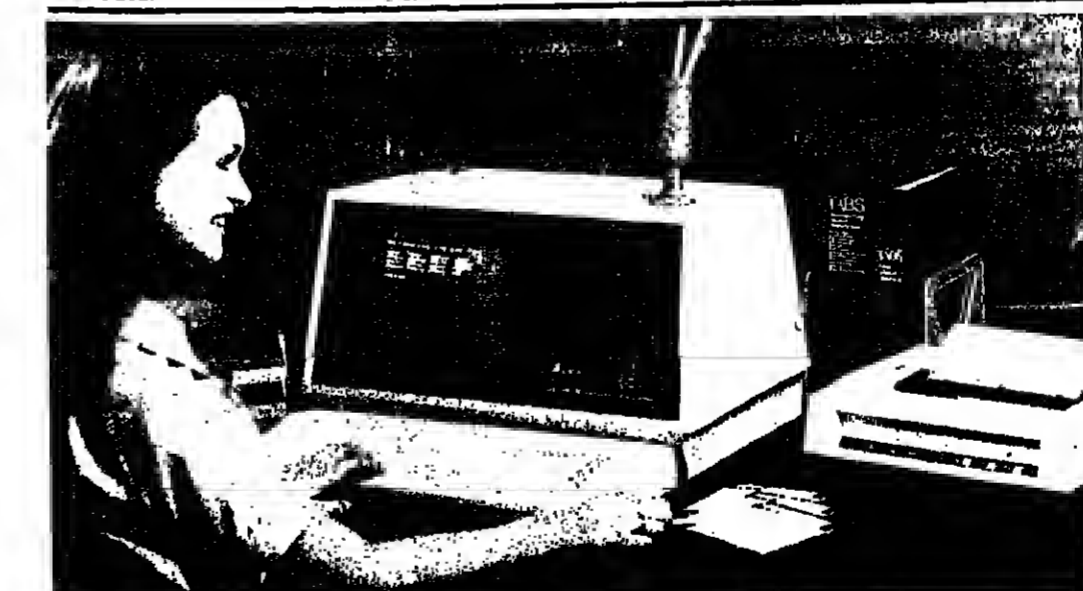
A portable programmer

A SMALL, portable unit for programming single 5-volt NMOS, EPROMs and EEPROMs without the use of personality modules, the Q850 is introduced by Quantec.

A particular EPROM type is selected by making a simple key-stroke entry. The Q850 then accommodates the device pin-out and algorithm, all under software control. Software updates will be available to accommodate future EPROM developments, without downtime or hardware hassles, says Quantec.

An RS232C interface allows data to be transferred to or from a development system or a computer at baud rates from 110 to 2400 baud. Several standard development system formats are available.

The standard Model Q850 has a 4Kx8 CMOS RAM buffer for data editing and manipulation. Quantec Systems (CW), 248 Bridge Rd, Lower Swanwick, Southampton, SO3 7ZD. Tel: 04895 5161.



The Genie III business package.

Micro package for small firms

A COMPLETE microcomputer business package aimed specifically at small firms and professional businessmen, is being launched by Lowe Electronics.

For £3,250 plus VAT, the Genie III business system offers a microcomputer, printer, software programs and a one-year maintenance contract covering hardware and software.

The software pack, worth nearly £700, is made and supplied by TABS and covers sales ledger, purchase ledger and nominal ledger systems.

The printer, an EG 3085 matrix model, has a 100 characters per second print speed, and is bi-directional at 60 or 136 characters per line. It offers two graphics modes, has adjustable pin feed and a friction feed system, can

take single sheet or roll paper and offers a range of three typesets. The Hong Kong-built Genie III is a fully expanded and integrated microcomputer, with 64K of RAM, a built-in screen, dual disc drive with double density, storage facility and full-size keyboard with outside keys.

Lowe Electronics, which has sold more than 10,000 Genie I and II home computers in three years, intends to launch the Genie III business system in September.

"We are now one of the highest selling computer independents and firmly believe the Genie III to be an essential extension to our product range," said Lowe's Computer Division director Rob Stead.

"This is the system for any or-

A PRINTERS' costing and estimating system has been announced by MAI.

Called Prince, the system has full word processing capabilities, and runs on MAI's range of computers, including the company's recently announced S-10 minicomputer.

The system provides day-to-day information for production departments as well as sales analysis on completed jobs. Where possible, it incorporates the costing and reporting recommendations outlined by the British Printing Industries Federation.

Certain operations can be selected at the time of file creation, including layout format for times taken from daily dockets, hours and minutes or hours and decimal of an hour, or time 'units', and automatic transfer of daily docket details to the weekly payroll system.

The number and description of cost centres and operations needed to be maintained by the system is under the user's control, and headings on the main work in progress and completed job re-

Modem 'does the job of two'

THE OZ 225 Network Modem, an intelligent asynchronous 212 compatible modem designed to maximise the efficiency of data flow in large computer networks has been announced by Tri-Data.

In many network applications it is claimed that a single OZ 225 can replace two conventional modems and an auto dialler resulting in savings in computer ports and telephone lines.

The modem operates as both an originate and answer modem at speeds of 110, 300, or 1,200 baud. It can be installed with virtually

ports can be selected by the user at the time the system is set up.

Prince provides day-to-day information for production departments, including sales analysis of completed jobs, and is capable of full integration with all accounting ledgers, payroll and stock control incorporating many of the costing and reporting recommendations laid down by the British Printing Industries Federation.

The package provides facilities for the costing of work in progress, detailed analysis of mark-up with profit percentage indications, job labour input analysed over cost centre, listings of slow-moving jobs and a comparison between actual and budget hours for each cost centre.

The estimating function enables all details from an estimate to be automatically transferred, creating a new job once the estimate has been accepted. Another option allows for the automatic production of job-beg details.

MAI (CW), Black Arrow House, 2 Chandos Road, London NW10. Tel: 01-965 9731.

any asynchronous ASCII terminal that provides an RS232 connection as well as to a host computer or a network processor. The OZ 225 can then become application specific through the use of OZ-COMM, a new high-level command language.

Telephone connection can be originated from either the terminal's keyboard or automatically from the phone number directory of the OZ 225.

Tri-Data (CW), 505 E. Middlefield Road, Mountain View, California 94043. Tel: (415) 969-3700.

In addition to these instant status reports the system provides a series of analytical reports. These include network availability, response-time distribution, and performance reports for every network device from CPU to terminal, and line and terminal usage reports.

These reports include comparisons over time for one element in the network as well as comparisons between separate devices. Furthermore, the system is totally flexible. It allows users to define measurement thresholds so the colour coded alert functions are geared to their own network.

The end result of NetAlert, say the manufacturers, is a more cost-effective and responsive network, with information for day-to-day administration and longer term planning presented concisely and clearly.

Communications Accessories & Equipment (CW), Akeman Street, Tring, Herts HP23 6AJ. Tel: (0442 82) 4011/5551.



Complete status and performance information "concisely and clearly" on NetAlert.

Advance in network management systems

AN ADVANCE in network management systems has been introduced by General Audio and Data Communications, part of the CAE Group.

The new system, NetAlert, measures and analyses all transmissions throughout a network. It provides complete status and performance information concisely, alerts operators to problems such as line errors or slow response times and allows planners to pinpoint traffic trends for future network extensions or reconfiguration.

NetAlert communicates with its operators through colour-coded graphic displays and printers, in addition to disc and tape storage.

It uses three display formats. At the highest level is a summary of all network activity and status (traffic volume, response times, real time status). Below this is the group screen, providing the same information on all lines in one selected group. Finally there is the line display showing the utilisation, availability and type of every device attached to that line in an easily understood format.

Produced in a wide range of colours, the distinctive computerised design also serves a practical purpose, aiding identification and coding. The hard-wearing Nyrex covers are double scored at the hinges, prefolded and boxed with the edges turned under for easy assembly. Integral low profile steel locking channels are fitted, carrying built-in slide lock suspension hangers as a standard fitting.

Six versions of the binder are in production, all with a capacity for up to 1,800 sheets of burst or unburst printout.

Relex has introduced a binder carry handle to make the handling and filing of bulky binders a little easier. Formed from flexible black plastic with a useful index area, the handle slides simply into the binder for carrying.

Both Nyrex Superflex binders and the Carry Handle are featured in a new 25-page A4 full colour catalogue, which documents in full the Relex Wilson Jones range.

Relex (CW), Gatehouse Road, Aylesbury, Bucks, HP19 3DT. Tel: (0296) 81421.

Printer for mobile applications

HAMPSHIRE-based computer development specialist, Feltec Micro Systems, has produced a portable printer specifically for mobile applications. The Feltec printer has been designed principally for vehicle use and can be bulkhead mounted or free standing, operating from any DC supply between 12 and 18 volts.

The Feltec printer boasts a new form capability operating with single sheets "posted" into the printer.

Feltec Micro Systems (CW), Queensway, New Milton, Hampshire. Telephone: (0425) 617477.

Preview routines added to Interactive Graphics Library

THE range of computer graphics software from Tektronix has been expanded with the addition of preview routines to the Plot 10 Interactive Graphics Library (IGL).

The new routines, available as a library module, allow a user to preview plots generated by application programs developed using Calcomp's fundamental graphics software.

The preview routines are suited to mapping, manufacturing and computer aided design markets, and provide the link between Calcomp software and Plot 10 IGL.

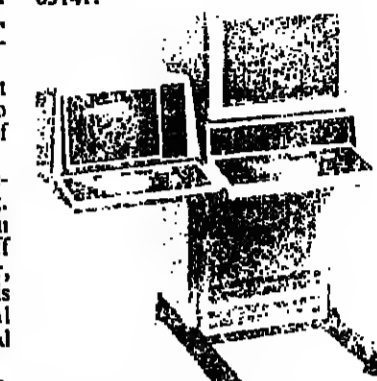
Any terminal supported by Plot 10 IGL can now be utilised to preview plots with the addition of the new routines.

The routines offer online inspection of drawings prior to plotting. Previewing on a high resolution graphics terminal can cut hours off the review process for the user, who can ensure that a revision is correct through close visual inspection of computer-managed drawings.

A feature of the preview routines is their compatibility with the Tektronix Plot 10 Terminal Control System (TCS), allowing

easy conversion of applications. Plot 10 IGL is a library of Fortran subroutines featuring host and terminal device-independent graphics capability. The modular structure of the library allows users on most systems to load only those routines necessary to provide a solution to a specific application problem.

Tektronix UK (CW), Beaverton House, PO Box 69, Harpenden, Herts. Tel: Harpenden 63141.



A Tektronix 4114 computer graphics display system running Plot 10 IGL software.

'World first' claim for binder

A PRINTOUT binder claiming a "world's first" has been launched by Aylesbury-based Relex.

Part of the Relex Wilson Jones range of data control and media management systems, the Nyrex Superflex binder can be used with most popular types of retention equipment and with nearly all sizes of burst and unburst printout.

Relex says the binders are the first to feature full colour printing on a white-based background, breaking away from conventional plain covers and making for a brighter, better working environment.

Produced in a wide range of colours, the distinctive computerised design also serves a practical purpose, aiding identification and coding. The hard-wearing Nyrex covers are double scored at the hinges, prefolded and boxed with the edges turned under for easy assembly. Integral low profile steel locking channels are fitted, carrying built-in slide lock suspension hangers as a standard fitting.

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Relex (CW), Gatehouse Road, Aylesbury, Bucks, HP19 3DT. Tel: (0296) 81421.

The Nyrex Superflex printout binder, with the binder carry handle.

Controlling colour graphics

A NEW low-cost colour graphics controller for LSI-11 microcomputers manufactured by DEC, is now available from Rapid Recall.

The VTV31-K provides an advanced colour graphics capability previously available only on PDP-11 or VAX-11 minicomputer systems.

The VTV31-K comprises a single dual height board which can be plugged directly into the host LSI-11 system bus. Using a full bit mapped display, the controller is able to address each point on the monitor screen allowing a virtually unlimited range of pictures to be displayed. A choice of up to eight colours can be selected for displaying data. Maximum resolution is 512 by 256 pixels.

Designed as a general purpose interface between the processor system and monitor, the controller is available with options that allow it to be used with low-cost, low-resolution TTL monitors or with higher resolution RGB monitors.

Rapid Recall (CW), Rapid House, Denmark Street, High Wycombe, Bucks HP11 2ER. Telephone: (0494) 26271.

Daisy wheel advance

ONE of the greatest limitations of the daisywheel printer is the restricted number of characters available on a single printwheel. Some attempts have been made to overcome this, employing two printwheels operating from different ends of the same platen on a single printer, but this technique has never been totally successful.

Zygal Dynamics now announces the Diablo Model 630 ECS daisywheel printer, that can run a wheel containing 192 complete characters and print characters which can construct over 400 different characters. A standard wheel will produce the complete international information transmission set (Teletext).

In word processing environments the ECS allows users to print standard and italic characters without having to change dislywheels.

Zygal Dynamics (CW), Zygal House, Telford Road, Bicester, Oxon OX6 6XB.

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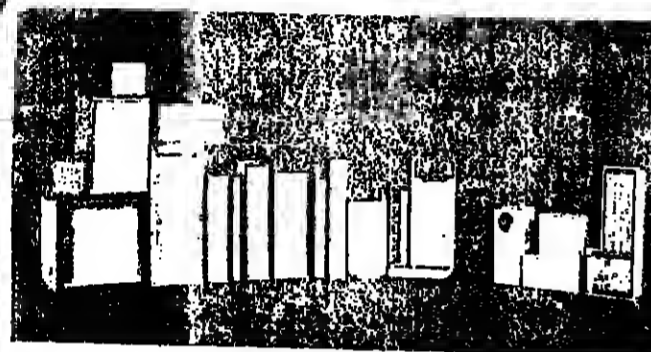
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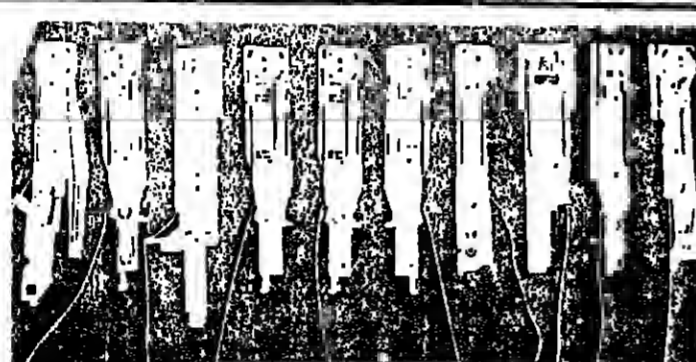
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EAST ANGLIAN REGIONAL HEALTH AUTHORITY Computer Branch

Opportunities in Health Service Computing

Applications are invited for the following posts which are based in Cambridge.

Starting salary: Depending on previous experience, could be up to £7,604 per annum, on a scale rising to £9,277 (current pay award pending)

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for our patient administration team based at Addenbrooke's Hospital offering a challenging position for an experienced systems designer to work on the development of inpatient administration systems for hospitals within East Anglia. The systems are being developed for CTL minicomputer equipment.

Designer/Programmer

for our microcomputing team for the development of microcomputer applications and software and to provide advice and guidance to users on all aspects of microcomputing.

Designer/Programmer

for our health care team to work on the redevelopment of child health and other systems for an ICL 2966 computer to be installed early next year.

Applicants should preferably be educated to degree level and have two to three years systems and programming experience. Less qualified applicants may be considered on an initial lower salary scale.

Application form, job description and further details from the Regional Personnel Officer, East Anglian RHA, Union Lane, Cambridge CB4 1RF (Tel: Cambridge 61212 ext 325).
Closing date: 18 August 1982.

Travicom

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Applications are invited from suitable experienced computer professionals for a number of positions within Travicom's expanding development group.

An intensive expansion programme is already underway to extend Travicom's uniquely successful reservations network both geographically and functionally.

Experience in one or more of the following areas will qualify applicants for consideration for interesting and rewarding positions in the range £3,500-£12,000 p.a.:

Z80 ASSEMBLER, PDP11, UNIX, C, PL/Z, VIEWDATA, CP/M, TRAVEL AGENCY SYSTEMS, COMMUNICATIONS, SOFTWARE.

Positions will be based in Maidenhead. Applications with cv should be sent to: Mrs J. L. Orla, Personnel Officer, Travicom, 13 Hermitage Parade, High Street, Ascot, Berks. Telephone: Ascot 20175/B.

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ANALYST/PROGRAMMERS Min. 2 years Basic + 2 w/with good general DP background. £18,000

DATA BASE TECHNICIAN Extensive IBM/IMS experience required. £18,000

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Client interviews will be held next week, so dial now — you have nothing to lose and everything to gain!

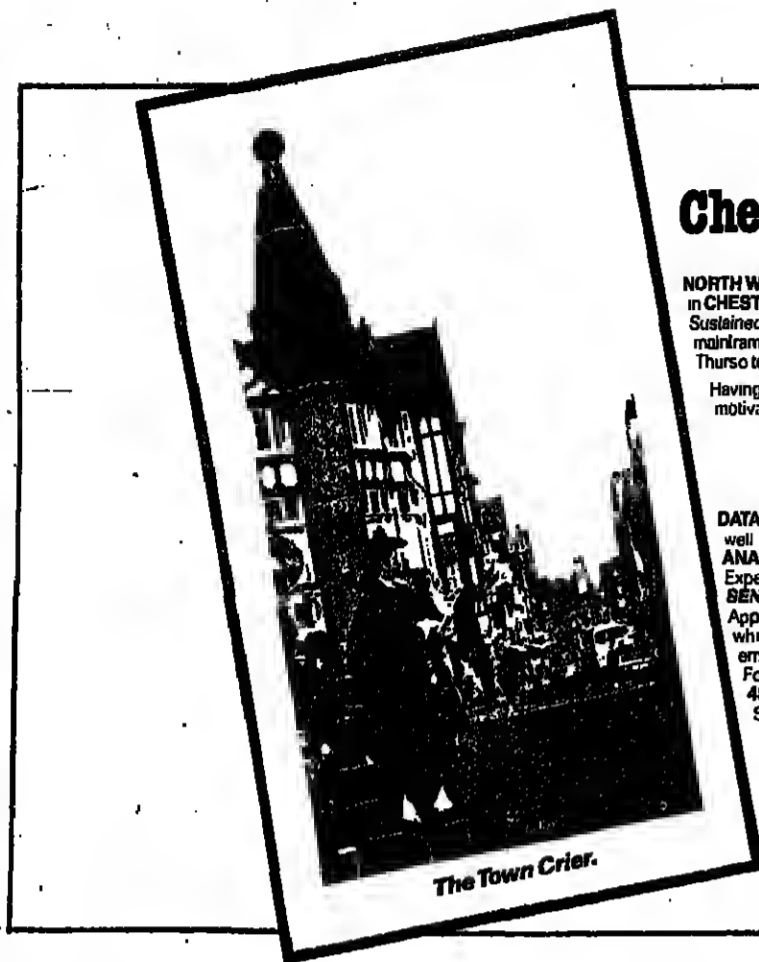
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DATABASE ADMINISTRATOR - To assist with the responsibility for database and TP administration and design. You will already have Honeywell database experience.
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Applicants for all the above positions will probably be in their mid to late twenties. Successful candidates will be rewarded with a benefits package which includes above average salary, contributory pension, BUPA, and concessionary mortgage facilities after a qualifying period of employment. Where necessary assistance with relocation will be given.
For further details of these superb career opportunities ring **ORAHAM PEPPER** on 081-491 1888 (during office hours) or **ADLINGTON** (0257) 480281 (evenings and weekends) or fill in and return the free post coupon to Computer People North (FREEPOST), Sovereign House, Stockport Road, Cheshire SK2 2YO.



Name _____
Address _____
Telephone (day) _____ (ev/nd) _____

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Recruiting for Clients

KIRKLEES Metropolitan Council

Directorate of Finance
OPERATIONS LEADER (Expanding ICL 2960 Installation)
Grade PO1 11-51 - £8,991-£9,993 p.a.
We seek a person with a number of years' experience at a senior level in Computer Operations, who is capable of accepting and discharging a high degree of responsibility for staff, schedules, performance and user service.
The experience should have been in an ICL 2960 Installation, preferably using VM/EDIT. The postholder will be primarily responsible for co-ordinating and supervising the functions of Control, Data Preparation, and the Computer Room staff, totalling 35.
The person will be involved in closely supervising a computer installation which is supporting an extensive TP network and database facilities, which are expanding into many areas of the Authority's activities; therefore applicants should have had extensive experience of this type of mixed mode working.
Informal enquiries may be made of Keith Wootton, Operations Controller. Tel: Huddersfield 22133, Ext. 591.

PRINCIPAL INSTALLATION OFFICER
Grade SO2 - £8,991-£9,524 p.a.
This is a new post within the Computer Division and has been created as a result of the authorities' expansion into the areas of Distributed Data Processing and Office Automation.
The postholder will be responsible to the Computer Manager for the specific implementation and upkeep of hardware and software to be installed at various locations throughout the authority.
Duties include:
Specification of Hardware and Software requirements
Development of specifications with suppliers
Co-ordination of pre-installation arrangements (including equipment accommodation and training)
Implementation of hardware and software to specification
Creation of control and security procedures
Co-ordination of systems development
Analysis of approved developments
System maintenance and upkeep
Development of networked links
Applications are invited from persons with a minimum of 5 years' computer experience, ideally gained in a variety of roles including operations and development. A minimum of 2 years' systems analysis experience would be an advantage.
Informal enquiries may be made of Neville Hayle, Tel: Huddersfield 22133, Ext. 323.
For application forms for the above two posts please contact Mrs G. Lightowler, Tel: Huddersfield 22133, Ext. 385, which should be returned to Mr. P. D. Sharnum, Director of Finance, Civic Centre, Huddersfield HD1 2NF by Thursday, 12th August, 1982.
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CICS/DL1 City of London

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Team Leader c £15,000

We are looking for a Team Leader with in-depth knowledge of CICS and DL1 - both in the areas of application usage and system software - and involvement in the design and planning of an IBM real-time application system. A good knowledge of COBOL and IBM Assembler will also be required. You will be responsible for the provision of CICS/DL1 design guidance to application and technical development teams, and for teleprocessing problem investigation and resolution in an advisory capacity. You will also assist in the planning/provision of development and testing environments, and the design and testing of CICS software.

Senior Programmers c £11,000

We wish to fill two positions. One senior programmer will work with the Team Leader described above, in TP Design and Support. The other will work on TP development. Responsibilities for both will include the specification and development of CICS/DL1 related software. Good experience of CICS/DL1 programming is required, together with COBOL (some IBM Assembler experience would be useful). Our environment is IBM 4300, VM/CMS, DOS/VSE, VSAM.

Programmer c £9,500

This is a good opportunity for an experienced DL1 programmer, with COBOL and/or HAT, to become involved in database design while providing programme support to the Database Development Group.

Please contact Joan Ainsworth on 01-600 5666, extension 3533 or write to her at Manufacturers Hanover Trust Co., Queensbridge House, 60 Upper Thames Street, London EC4V 3EN.



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To apply you must have -
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For an application form please contact
Tricia Owen, Ref. RPT, at Logica Limited,
64 Newmarket Street, London W1A 4SE.
Telephone 01-637 9111



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The successful applicant would have a varied and rewarding career within this fast-growing company providing in-depth technical expertise to our highly professional sales team. The support team also has a considerable contact with potential and existing customers.

The people we are seeking will also have a good education and mature personality. They will have experience of at least one high level language and would probably have been working in a similar environment. A proven understanding of the application of modern computing techniques in either the Technical or Commercial spheres is essential.

The standards we set are high so naturally we offer an excellent remuneration package; additionally the position could merit a car.

Please telephone Mike Cornwell on Newbury (0835) 31466 or if you prefer write enclosing a c.v. to

Norsk Data Ltd., Nord House, Pelican Lane, Newbury, Berkshire, RG13 1NU
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Currently, our members have urgent requirements in many areas of Data Processing and Computing. We also operate in a number of other disciplines including Finance and Accountancy, Engineering and Management Consultancy.

For further information about the Irex organisation and for details of membership of the Clearing House, please call John Edwards on 01-261 1543 (24 hours) or send him the completed coupon below.

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Systems Development Manager

Salary and benefits in excess of £20,000

Excellent financial results coupled with exciting growth potential have been the result of decisive and dynamic management at LRC Products Limited, part of the LRC International Group. To assume responsibility for the development and ongoing maintenance of computer based systems, which play a major role within the Company's management, an articulate and experienced Systems Development Manager is being sought.

Controlling and motivating a sizeable staff, who utilize the resources of an IBM 4341 with an established on-line data base, will feature prominently in the successful candidate's day-to-day responsibilities. Of necessity, he or she must possess the personality to be an able planner and organiser, be capable of dealing with several priorities simultaneously and provide inspirational leadership via practical ability.

Combining the qualities of both achiever and theorist, an IBM background and proven demonstrable experience in a similar capacity, ideally, but not essentially, gained in the fast moving consumer goods or allied industry, would be highly advantageous. The planning and implementation of a variety of projects to set timescales, effective liaison at various levels, business acumen, the capacity to implement new systems that generate optimum benefit in a fast changing business environment coupled with an in-depth knowledge of information processing development and techniques are also essential prerequisites.

Based at Chingford, the selected applicant will report to the Director of Management Services and Distribution, but will have the freedom to control most aspects of systems development. The salary and executive car offered amply reflect the importance of the position. The benefits package includes an annual bonus, non-contributory pension scheme, free life assurance, BUPA and re-location assistance where applicable.

Applicants, male or female, should write initially to Richard Leslie, Personnel Director, at the address shown below, including a comprehensive C.V.



LRC Products Ltd
North Circular Road
London E4 6QA

Logitix

Logitix Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Financial Consultants

Central London: Salaries to £15K

The financial division of a leading City-based Systems and Software House currently requires additional Consultants. Suitable applicants will be graduates with a minimum of five years' experience within either a Financial Institution or Management Consultancy. In particular you should offer a knowledge of one or more of the following: automatic tellers, electronic funds transfer, commodity trading, futures markets or foreign exchange systems. All applicants should have been involved in the design and development of at least one complete system and preference will be given to those who have led a project team or who demonstrate management potential. Ref: L/30/A

Micro Design Engineers

Wilts/Avon: Salary to £10K

A number of Micro-Processor Design and Development Engineers are sought by a leading micro-computer and semi-conductor manufacturer. As there are a considerable number of positions available, the variety of skills required is, necessarily, diverse. However, experience in one or more of the following areas is essential: customisation of Operating Systems such as CP/M or MP/M, with a salary premium attached to a knowledge of a networking O.S.; compiler and cross-compiler development particularly if utilising PASCAL or C; familiarity with a leading MDS and, also, experience in the design and production of interface hardware and software. A degree of customer contact is a feature of most of these positions and, therefore, an outgoing personality and good communication skills are required. Ref: L/30/B

VAX Progs/Designers

London & E.E.C.: Salaries to £15K

A leading international company specialising in the development and sale of computer software is seeking Programmers and Designers for its Central London and overseas facilities. Suitable candidates should hold a numerate degree and have two years' subsequent programming or systems design involvement. Fluency in French is essential and it is preferable to have had exposure to either a PDP 11/RSX-11M or VAX-VMS environment. Candidates who are fluent in a foreign language especially French or German will be of particular interest to our client. A degree of mobility is necessary since most positions involve both European and Transatlantic travel. Ref: L/30/C

Flexible Manufacturing Sys'ts.

Bucks: Salaries to £10K+

Systems Programmers, with substantial experience in the development and sale of computer software, are sought by a leading supplier of computer controlled machinery. Suitable applicants will be graduates in a scientific subject, preferably Electrical or Electronic Engineering, followed by two years in an industrial environment. At least three years' experience gained on a 16-bit micro-processor is essential, with a preference for those who have used Texas Instruments 9900. Fluency in a high-level, block structured language, preferably Pascal, is a prime requirement, with knowledge of an assembler and an understanding of basic micro-computer hardware being useful supplementary skills. Respondents with either supervisory abilities or, alternatively, a background which encompasses manufacturing industry will be particularly welcome. Ref: L/30/D

Micro Assembler Progs.

Greater London: Salaries to £9K

A number of Systems and Applications Programmers with at least 12 months' post-graduate experience are sought by an expanding total systems supplier. All applicants should have worked on an 8- or 16-bit micro-processor system and be fluent in assembly language. Applications Programmers will be expected to develop bespoke software and tailor existing packages for the company's large client base. Systems Programmers should have extensive knowledge of the internals of the CP/M Operating System and should be familiar with both single and multi-user environments. This small, dynamic company provides an ideal opportunity for ambitious young professionals to enhance their skills. Ref: L/30/E

Data Communications

South Midlands: Salary to £15K

A highly regarded supplier of Hardware and Software Systems is seeking a number of Data Communications and Networking Engineers for its Research and Development facility. Suitable candidates will currently be employed in a development capacity with either a Systems House or Manufacturer. Particular areas of interest include but not limited to two years' programming experience of a high level language such as Pascal or C and preferably in addition have some practical knowledge of an IBM or DEC Assembler language. Of particular interest will be candidates who have in-depth knowledge of communications protocol techniques - X-25, SDLC/HDLC. For the more senior positions it is essential that respondents have good personal presentation skills since you will be expected to liaise and co-operate with both senior technical management and technical users. Ref: L/30/F

Simulation Engineers

Central London: Salary to £11K

A long-established Engineering Systems Supplier based in Central London has an immediate requirement for additional Fortran Programmers and Simulation Engineers. All respondents must hold at least one numerate degree and additionally offer a minimum of one year's post-graduate industrial experience. Whilst our client's software and system products are portable there is some preference for candidates who are currently Fortran programming in a PDP/VAX, Prime or Hewlett-Packard environment. For all programming and design positions, you should have current work experience on a major simulation project where you have participated in the implementation and integration of on-board real-time operations software. Ref: L/30/G

Technical Authors

Suffolk/Cambs.: Salaries to £10K

A leading British supplier of micro-computer based systems has an urgent requirement for Technical Authors. Suitable applicants will have a minimum of two years' experience designing and writing user documentation for at least one hardware or software product. A good command of the English language is essential as is the ability to communicate with both technical and non-technical personnel. The successful applicant will be offered excellent opportunity for career development and our client anticipates early progression into either a management position or into systems support. Ref: L/30/H

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COBOL/ROS
COBOL, CICS OL/1

RPG 111, S/38
RPG11, DCS or COBOL

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SYSTEMS PROGRAMMERS
NETWORK DEVELOPMENT
Applications are invited from graduates for two posts in the IBM-MAC Computing Services. The posts, based in Newcastle, form part of a well established group concerned with the development and maintenance of the extensive local network and the extension to this to provide access to national and international networks.

Applicants should have a knowledge of networking protocols and technology, experience with DEC PDP11 computers would be an advantage. One of the posts is permanent and appointment will be made at an appropriate point on one of the following scales according to age, qualifications and experience:
Range 1A: £2078-£18,876 or Range 1B: £2762-£25,000
The second post is for one year only from 1st September 1982. Appointment for this post will be at an appropriate point on the Range 1A scale according to age, qualifications and experience.
Further particulars may be obtained from the Deputy Registrar (F.P.), The University of Newcastle upon Tyne, NE1 7RU. With a curriculum vitae, 12 copies together with three recent passport size photographs, should be sent not later than 20th August 1982. Please quote reference CW/272.

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TEAM LEADER £12,000 + benefits
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Ready for the next step in your career path. Read on! This company is highly reputed and will give you the opportunity to get involved from development to design and management. The requirements are IBM/COBOL/DATABASE/REAL TIME covering at least five years D.P. plus 'A' level standard of education. This job offers responsibility, challenge and variety! Sounds interesting? CALL US NOW!

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LONDON
Our client, a leading financial organisation, would like to recruit an Analyst/Programmer. The successful candidate must have a good IBM background preferably on a MVS/VS1 site. COBOL is the required language and a minimum of 1 1/2 years' experience should be offered. You will have the opportunity to work within a large custom-built services division which uses IBM mainframes backed up with use of minis. A good career path and a stable working environment also accompany this position.

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Away from the bustle of town, this financial company is seeking a programmer to add to its team. You should have a minimum of 18 months' programming experience, preferably within an IBM site, although consideration will be given to applicants with other hardware experience on a COBOL/financial site. For these programming vacancies call Lynda on 01-242 0078 or 01-404 4339.

PERMANENT JOBS BASED IN FLORIDA AND SAUDI ARABIA.
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SYSTEM PROG: IMS or CICS on an MVS or OS/VS1 SITE.
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- VAX COBOL or BASIC - 6 months, Home Counties and West Country.
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SYSTEMS DESIGNERS
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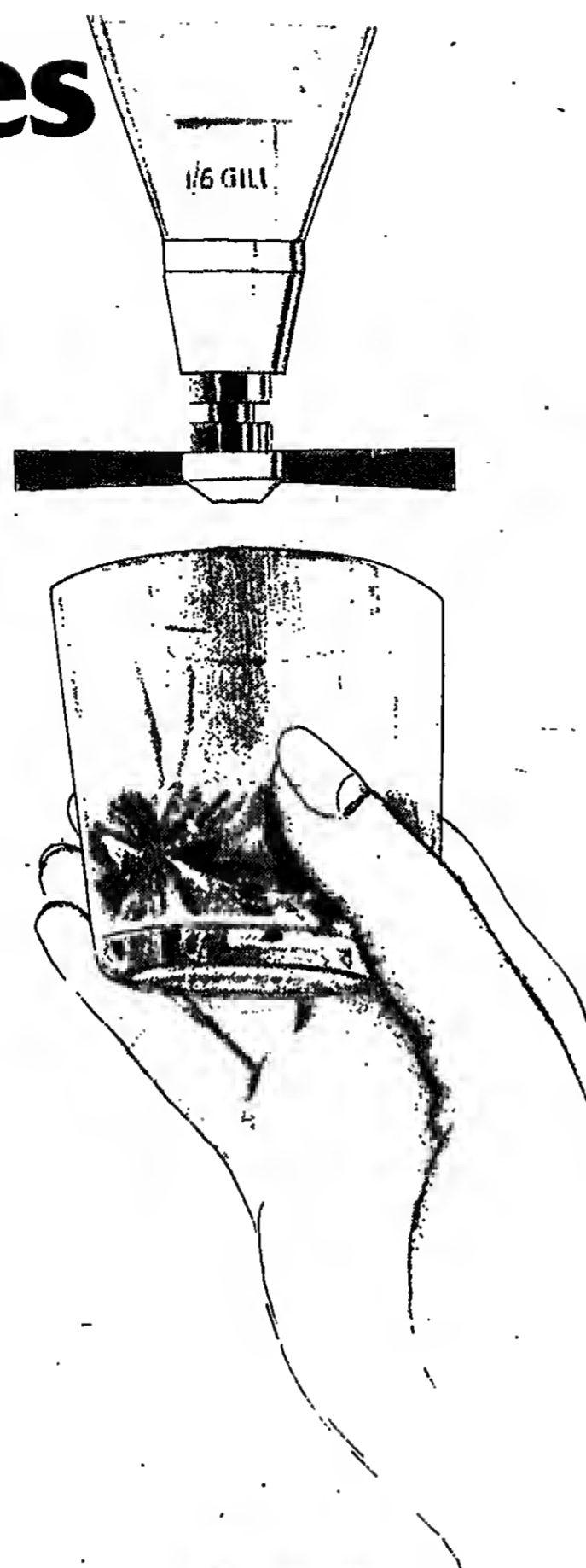
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Our client is Marine Transport International Co Limited, a joint Saudi Arabian-British company, who, on behalf of and in conjunction with the Saudi Ports Authority, manage and operate the container terminals in the fast expanding port of Jeddah.

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The objective is to completely computerise the terminal which will involve the development of a number of real-time systems.

The Computer Manager will:

- manage the computing department
- manage and participate in the development projects
- liaise with hardware/software suppliers and the Port Authority

The successful candidate will have a degree together with a background in industrial/technical systems. Additionally, the candidate will have systems experience on PDP 11 computers, preferably operating under DSM II or MUMPS.

In addition to the quoted salary, a generous living allowance is paid, transport and free furnished air-conditioned accommodation are provided. Other benefits include generous leave, BUPA, NHI, Medicare and excellent recreational facilities. The position is available on either family or single status.

For more details, please contact Andrew Cousins quoting Ref: M63.



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URGENT

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Dear Contractor,

REF: HPSSL'S FIRST-EVER SPECIAL RAFFLE

The glad tidings of our proposed raffle, for a micro computer, appears to have travelled far and wide. A number of anxious would-be participants have contacted us to say that they have not received the details of entry to the competition. We can only assume that the recent happenings on the railway, or perhaps the postal services, have conspired against us in this matter.

If you did not receive an original letter of invitation and wish to be included in the draw, please forward your CV at once marked "Micro Computer Draw" or contact the office for an abbreviated form and then:

HURRY THE COMPLETED FORM TO US FREEPOST

In order to give all interested entrants to the raffle a fair chance, we have agreed to hold over the draw of the lucky winner until September.

The winner's name will be announced in all our press advertisements in that month.

Contact with the winner will, of course, be made by telephone or telegram immediately the draw has taken place.

For your information, the micro computer chosen for our draw is the VIC-20 Colour Computer - a very handsome prize you'll agree - so rush your curriculum vitae to us

FREEPOST HASTE

Good Luck

Yours sincerely
H. PROGRAMMING AND SYSTEMS LTD.
JAMES T. BARKER

PS: Please tell your colleagues about our draw because your name can be entered for the draw for more than once by getting any of your colleagues who are not already registered with us to do so. Any new names will also qualify for the raffle together with the name of the individual who introduced them. No restrictions are placed on the number you can recommend.

PPS: Please make sure you include your name, address and telephone number on your form.

Please reply to:

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London
It is difficult to be successful over a wide range of computer services but our client has been so, growing by more than 35% p.a. over the last five years. Growth that has created many sound, career opportunities NOW, particularly on financial projects for London clients.

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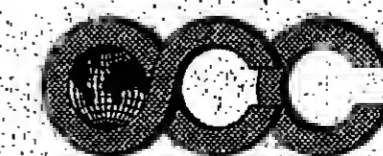
WRITE with full CV to the address below (no stamp needed).

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COUPON CW 29/82

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Present Job (Employer/Year)

Reference number(s) of position(s) you are interested in

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Internal Auditor Vacancy (Electronic Data Processing)

We are a leading Oil Producing Company operating in Offshores areas of Abu Dhabi, United Arab Emirates.

Well qualified and suitably experienced people between 30 & 40 years old are invited to apply for the post of Electronic Data Processing Auditor.

This recently created post is the first stage in the establishment of a full Data Processing Audit Section within the Internal Audit Branch.

The post holder will report directly to the Internal Audit Controller and will be responsible for planning the work of his section, testing and reviewing the internal controls incorporated in all computerised systems, developing and maintaining audit software and training local staff in computer audit methods.

The ideal candidate will be a qualified accountant with professional accounting qualifications ACCA, ACA or CPA and having a minimum of seven years extensive post qualification audit experience which should include either specific Data Processing Auditing with design or use of Audit Software or Computer Systems design. Knowledge of ICL Hardware & Software will be an advantage.

Benefits include a high salary dependant on age, qualification and experience and ranging between US\$32,770 and 39,120 per annum, good career prospects, free medical care in the UAE, free furnished family accommodation, paid home leave for the family and educational assistance.

Candidates are invited to apply in English giving full details of education, training and experience supported by copies of relevant certificates separately to both the following addresses, not later than 3 weeks from the date of publication:

1. Senior Personnel Officer (CPA)
P.O. Box 303,
Abu Dhabi, U.A.E.
2. Department of Petroleum,
P.O. Box 9,
Abu Dhabi, U.A.E.

Knowledge of Arabic will be an advantage. Any applications which fail to comply with the above will be disregarded.



(02085)

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Outstanding marketing talent, a proven record of success in the sales of microcomputers or capital/specialist equipment matched by drive and commitment are the professional and personal qualities we believe will be necessary to develop a successful business in a highly competitive and innovative market.

The remuneration package will reflect the importance of this position and will include a high basic salary, profit share, car, health insurance and pension scheme.

Only interested applicants who can honestly tell they can meet this unique challenge should write with full career details (including a day-time telephone number) to the Managing Director, Spring Computer Shops Limited, Spring House, 1 Spring Crescent, Portsmouth, Southampton, SO2 1TZ.

(0404)

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The London Borough of Brent wishes to appoint a System Analyst, with responsibility for promoting Computer Usage within its Department of Development, and for identifying existing problems and recommending solutions.

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Application forms and job descriptions from the Personnel Division, Room 708, Brent House, High Road, Wembley, Middlesex, returnable 13th August, 1982. Telephone 01-803 0371 (24-hour Answerphone service). Reference Number D/481 must be quoted.

London Borough of
BRENT

(0423)

UNIVERSITY OF BIRMINGHAM
Department of Engineering Production

Research Fellow/ Research Associate

Search Strategies and Eye Movements

Applications invited for this MOD/RSRE funded post tenable immediately until May 31, 1984, with possibility of renewal for one further year. Applicants should have experience in computing and methods of statistical analysis and have an interest in visual search or eye movements. Applicants having a first degree in psychology, ergonomics, mathematics or computing sciences will be preferred.

Applicants with PhD and/or relevant experience will be appointed at level of Research Fellow 1A £8070-£10576 plus superannuation. Maximum starting salary £8880. Applicants without a PhD will be appointed at level of Research Associate 1B £5285-£7700 plus superannuation. Maximum starting salary £6070. Informal enquiries to Dr. E. D. Megaw (021-472 1301 Ext. 3518/2000).

Further particulars from Assistant Registrar (Sci & Engr), PO Box 369, Birmingham B15 2TT, to whom applications (three copies including full curriculum vitae and naming three referees should be sent by Friday, August 13, 1982. Please quote ref: CWP1.

(0415)

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Application forms and further particulars are available from:

The Personnel Officer
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Tel: (0533) 551551 Ext. 2263

(0400)

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The successful candidate would work closely with other members of the group on developing, supporting and maintaining programs in a wide range of Engineering and Administrative applications.

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(0422)

Associate For Personnel
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(0423)

Mott Hay & Anderson
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COMPUTER SYSTEMS ENGINEER

BBC Engineering Division are looking for an experienced Systems Designer to work in their Studio Capital Projects Department.

The post involves the analysis, design and implementation of software controlled systems for broadcast applications which include the routing of Audio and Video signals, Digital Signal Manipulation and Teletext generation.

The postholder would manage substantial projects which had contributions from engineers within Studio Capital Projects Department, from other specialist departments and manufacturing industry.

Projects may be undertaken for any of the BBC output Directories and considerable liaison with both manufacturers and broadcasting personnel is required.

Candidates must have at least four years' experience in the analysis, design and implementation of mini-computer systems and preferably be a graduate professionally qualified in engineering or computer science. Previous experience of either broadcasting and/or DEC or other mini-computer equipment would be an asset.

Candidates must be capable of clear expression both verbally and in writing and must be self-motivating. They should preferably be conversant with financial and project planning methods and techniques.

Salary £10,785 - £13,184 pa according to qualifications and experience. Base will be in London but candidates must be prepared to work away from base at sites throughout the United Kingdom.

Application forms may be obtained from BBC Engineering Recruitment Officer, Room 334, 33 Caversham Square, London W1A 1AA, quoting reference number B2.F.4054/CW.

For further information, telephone Paul Jarrell, Head of Computer Systems Unit, SCPD on 01-740 5440.

BBC

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(Arabic speaking)

Middle East

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Ability to write clear and concise reports is essential. Although a degree in Computer Science or Engineering would be preferred, we will accept an MBACS. This is an important position which offers a very lucrative 'tax-free' salary package plus free accommodation, catering and local transport. Tours, which are on bachelor status, will be of short duration with generous leave entitlement.

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Gray Mackenzie

(0423)

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SNA VTAM IMS CICS SYS. PROGS. (NOW)
DATA BASE OR COMMUNICATIONS (IBM USEFUL) (Late Summer)

SENIOR CONSULTANTS (SOON)
UNIVAC FORTRAN (NOW)
MVS/PL/1/OL1/JACKSON (Aug, Sept, Oct Start)

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UNIVAC COBOL/OMS/TIP (NOW)
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need Programmers with

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Salary required: £

Name: _____
Address: _____

Post in strict confidence to: Rob Nedham, Hoskyns Group Limited,
145-157 St. John Street, London EC1V 4QJ. (Tel 01-251 4581).

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Since the founding of the Hoskyns Group in 1964, our history has been one continuous success story.

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hoskyns

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لنا موفيق

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PROGRAMMERS

£6,500-£11,000

+ benefits

Scicon

a member of the BP Group and one of Britain's leading Computer Service Companies, is looking to attract Programme and Programmer/Analysts with a minimum of 2 years COBOL experience to join a team working in their Milton Keynes offices.

Working within specialised project teams, successful candidates will be involved in significant DEVELOPMENT in both FINANCIAL and GENERAL COMMERCIAL applications using the latest development techniques, i.e. DMS, TIP, DPS on UNIVAC Hardware.

The Company's Employment Package includes subsidised lunches, a pension scheme, sporting and social facilities, subsidised private medical scheme and relocation assistance where appropriate.

For further information contact:-

Chris Chahade
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FREEPOST
Leighton Buzzard
Bedfordshire LU7 7BR
Telephone: 0525 384735/382555
or 025 672 221
evenings/weekends



HOWLETT

COMPUTER SERVICES

Contractors The direct alternative

CONTRACTORS

The National Computer Contract Directory is a method of putting contractors and computer users in touch without either side having to resort to intermediate agencies. The potential savings made possible, to both sides, are substantial.

The following table is compiled from a survey conducted among one hundred contractors who were working on behalf of clients to whom they had been introduced by an agency. It shows clearly the distribution of payment for the various categories of contractors.

These agencies added an average of 39% (i.e. £6,636) on top of your earnings. Is that a fair reflection of the services they provide?

Category	Average Weekly Pay	Average Charge	Agency Margin	Agency Commission On Pay
Programmer	£319	£445	£126	40%
Senior Programmer	£371	£508	£137	37%
Analyst Programmer	£423	£589	£166	42%
Chief Programmer	£429	£570	£141	33%
Senior Analyst Programmer	£572	£780	£208	36%
Systems Analyst	£625	£876	£251	36%
Systems Programmer				
Consultant/Project Mgr				

Because the first three categories accounted for over 70% of the sample, the weighted annual average is as follows:

Annual Pay	Annual Charge	Margin	Commission on Pay
£18,040	£24,876	£6,836	39%

THE DIRECT ALTERNATIVE

For those contracting companies and clients, who make contact and negotiate directly, this margin is available for redistribution in the form of:-

- Increased earnings for the contractor, or
 - Reduced costs for the client.
- Purely as a guideline, we have published the following pay indicator based on a 60/60 allocation of margin:-

Category	WEEKLY RATE	47 WEEKS
Programmer	£382	£17,954
Senior Programmer	£440	£20,680
Analyst Programmer	£484	£22,748
Chief Programmer	£499	£23,453
Senior Analyst Programmer	£591	£27,777
Systems Analyst	£671	£31,467
Systems Programmer		
Consultant/Project Manager		

Contracts through The National Computer Contract Directory should earn you between £2,950 and £11,500 extra annually.

AGENCIES

The ideal agency, would know of every contract and every contractor. However, few if any, contractors are registered with every agency. In order to access a realistic proportion of skills, the client must be in contact with a large number of agencies.

This means that the contractor must miss many opportunities. Assuming an opportunity does occur, the contractor's interests are seldom of primary importance. The rate the client can afford and the commission the company is seeking are the central issues. Often, if the agency charges are too high, the client will not use the contractor, so depriving him of work and income.

DIRECTORY SUBSCRIBERS

The National Computer Contract Directory is available to every direct user of contract services. It will contain a wide choice to allow an exact match - no more compromise. To locate contractors you simply phone and our on-line enquiry system will provide exact matches.

Name: _____
Position: _____
Company: _____
Address: _____
Tel: _____

SEND TO: THE NATIONAL COMPUTER CONTRACT DIRECTORY FREEPOST LONDON W5 2BR

THE DIRECTORY

The ideal situation is to make details of all contractors available to every major computer user. The National Computer Contract Directory is a practical system which achieves this purpose.

All entries will conform to a simple but comprehensive format which facilitates "at a glance" comparison and subscribers will be directed to entries which are appropriate to their requirement by the Directory's data centre which is designed to provide rapid response to the most exacting criteria.

The directory will be updated on a daily basis and subscribers will be able to access pre and post publication data which will be forwarded in hard copy within 24 hours.



WHAT YOU GAIN

- By releasing more income to your business you are assured of the increased profits and cash flow necessary to expand.
- This entry remains permanently in the directory - free of any charge!

WHAT DO YOU HAVE TO LOSE?

...it's free

DIRECTORY ENTRY DETAILS

IN CASES OF CONTRACTORS EMPLOYING MORE THAN ONE SPECIALIST WORKER, A SEPARATE FORM MUST BE COMPLETED FOR EVERY SUCH WORKER. IF THIS APPLIES TO YOU, EITHER (a) PHOTOSTAT THIS FORM OR (b) INDICATE, IN THIS BOX, HOW MANY ADDITIONAL FORMS YOU REQUIRE.

NAME: _____
ADDRESS: _____ TEL. NO.: _____
NO OF YRS IN DATA PROCESSING: _____
PREFERRED UK WORK LOCATIONS: _____
WILL YOU CONSIDER WORKING ABROAD? _____

HARDWARE EXPERIENCE	MONTHS	PROGRAMMING LANGUAGES	MONTHS	APPLICATIONS SOFTWARE	MONTHS	SYSTEMS SOFTWARE	MONTHS	ENVIRONMENT	MONTHS
E.G. APL, FORTRAN ETC.		E.G. COBOL, BASIC ETC.		E.G. DB, TOTAL ETC.		E.G. DB, DB2, IMS, ETC.		E.G. PAYROLL, ORDER ENTRY ETC.	

FURTHER INFORMATION: PROGRAMMERS ARE ADVISED TO DESCRIBE THE DEPTH OF THEIR PROGRAMMING EXPERIENCE AND ANALYSTS SHOULD LIST THOSE AREAS OF SYSTEMS ANALYSIS IN WHICH THEY ARE EXPERIENCED I.E. FEASIBILITY STUDIES, SYSTEM DESIGN, PROJECT RESPONSIBILITY, USER INVOLVEMENT, MANAGEMENT EXPERIENCE ETC. IN ADDITION YOU SHOULD MENTION ANY SPECIALIST EXPERIENCE YOU FEEL IS RELEVANT TO THE CURRENT MARKETPLACE.

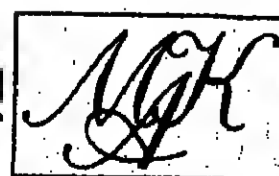
PLEASE RETURN TO: WILLOWAY LTD (THE NATIONAL COMPUTER CONTRACT DIRECTORY) FREEPOST LONDON W5 2BR TEL: 01-887-8601

HONG KONG

TECHNICAL SUPPORT MANAGER
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- One of the UK's leading Computer/Service organisation's is seeking an experienced Support Specialist to manage its pre/post sales activities in HONG KONG and SOUTH-EAST ASIA.
- Applicants should be single, aged 26-36, be highly presentable and possess sound experience of managing a dynamic support team.
- Knowledge of communication networking and a thorough understanding of Micro Computer application is essential. Experience of commercial and Financial Software would be an asset.
- This exciting opportunity includes: Low Income Tax, Medical Insurance, four weeks' annual leave, accommodation assistance and return flight to U.K.

For an informal confidential discussion call VIC CHIVERS on 0905 28489 (office) or on 0905 353248 (home).
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SOFTWARE PROGRAMMERS

SOFTWARE ENGINEERS

SOFTWARE DESIGNERS



Make The World A Smaller Place

Marconi Radar is a world leader in every sense. For example the next time you fly the chances are that your aircraft will take off, route and land with the assistance of Marconi Radar. As for defence a network of advanced systems protects the UK and many of our NATO allies. The latest development in this technology is the Martello three dimensional radar created to provide high integrity range, bearing and height data. A new product with incomparable scope and reliability.

Success comes from providing a total solution. That means fully integrated engineering and software systems designed, installed complete and fully supported. They provide the key to a growing international market which demands increasing visibility over land, sea and air. In making the world a smaller place Marconi Radar have an enviable reputation and an exciting future.

SOFTWARE PROGRAMMERS will have about 4 years experience including Assembler or similar, program specification and design along with formal training in systems design, perhaps in a mini/micro environment.

SOFTWARE ENGINEERS with about 6 years experience which will include programming, systems design and implementation gained in a senior role in a mini/micro environment. Experience of real time applications would be preferable.

SOFTWARE DESIGNERS will perform a consultant's role and therefore must have at least 7 years experience in systems, a developed understanding of software implementation and the ability to convey ideas and concepts in a real time environment. In addition experience of similar applications is sought along, perhaps, with some hardware or electronics knowledge.

The company is based, within easy reach of London, in some of East Anglia's most beautiful countryside. Housing is available at reasonable prices and benefits include very competitive salaries, flexible working hours, 5 weeks holiday, generous relocation package and outstanding sports and social facilities.

In the first instance telephone Francesca Drinkwater at the number shown below or alternatively cut out the coupon and we will send you an application form and comprehensive reference file.

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IBM COBOL PROGRAMMERS

VICTORIA to £8,500 + MORTGAGE ASSIST.
A very good chance here to use your COBOL & DL/I experience to full advantage. This is a Bank with a difference, where effort and responsibility are rewarded. Exciting new Real-Time applications, and you do not need a Banking background. CW 30/1

SENIOR PROGRAMMER

CITY to £9,000
A world-famous publishing organisation is interested in engaging a Senior Programmer with UNIVAC COBOL experience. The selected applicants should have a mature outlook and have the drive to get on. The working environment is excellent and career prospects look good. CW 30/2

SYSTEMS ANALYST

N. LONDON to £12,000
If you are career minded and enjoy the hurley burley of a Software House/Service Bureau environment, then you will enjoy working with this young progressive company. They have developed a niche in the market place within the Mini Computer field, which is now paying dividends and all types of Real Projects are in hand. Ring for details. CW 30/3

SENIOR SYSTEMS ANALYSTS

CITY to £13,750
A major dual ICL 2960 User is developing Real Time Systems within the Transport Industries, and requires top-grade analysts to fit into the following four applications slots:
- Personnel - Financial - Statistical - Inventory Control
Working for this large stable company will enable you to expand your experience to the full and stand you in good stead for the future. Company benefits are outstanding. CW 30/4

CONSULTANT/PROGRAMMERS & ANALYSTS

CITY to £10,000-£18,000
If you are in the age range of 25-35 with a good degree or equivalent, and the multiple skills of having worked in more than one Commercial environment, then now is the chance to benefit from your background. Three major manufacturing consultancies require your skills now as a Programmer Analyst or Project Manager. CW 30/5

RPG PEOPLE

HOME COUNTIES to £10,000
We are looking for experienced RPG Systems 34/38 Programmers and Analysts Programmers for multi various vacancies in C. London, Enfield, Bromley, Harsham and South West Midlands plus other locations. All these companies offer super opportunities for career progression plus relocation expenses and one offers banking perks. Please ring now. CW 25/2

ANALYST/PROGRAMMER

KENT to £10,000
How is this for an opportunity? A major commercial organisation can offer not only reduced tax rates but also assistance with moving and expenses. You have to provide an ICL COBOL background or TOTAL experience plus the ability to supervise a small team of programmers. CW 25/6

LATEST FREELANCE PROGRAMMING VACS

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SOFTWARE DEVELOPMENTS IN WINCHESTER

Office Technology Limited (OTL) is a dynamic young company making pioneering developments in office automation. It is a member of the Information Technology (ITL) Group, the independent British group dedicated to the efficient and productive management of all forms of information by today's most advanced technology. OTL has an ambitious development programme of products for the future. Several key personnel are now required. They will join a dedicated high level group working at the forefront of technology.

Project Manager, Software Development

Reporting to the Software Development Manager, the new Project Manager will be responsible for B/I/O engineers working on one or more software projects from conception to completion. The job covers all aspects of a software project, including documentation, development equipment and budgets. The job is split 50/50 between administration and technical direction/management. The Project Manager will have technical authority on the project, and responsibility for completion to time and budget. Candidates should be under 35 and be graduates in science, engineering or computer science. A minimum of 18 years in a product related environment is essential on real-time software developments. Ref: PMS/D

OTL Office Technology Limited

DO YOU NEED TRAINED TECHNICIANS?

Twelve technicians with specialist knowledge and practical training in servicing microprocessor based systems will be seeking employment nationwide from August this year. Having completed a full-time M.S.C.-sponsored training course, they will be equipped with the skills to repair and maintain a wide range of microelectronic products and allied equipment.

For further information about the training or the trainee persons, contact Les Thurgood or John Thorpe at Blackpool and Fyfe College, Ashfield Road, Blepham, Blackpool. Tel: 0253 52352 Ext. 235.

PROGRAMMER

Post No. 177 Salary from £5,000 to £7,500
The company requires an ICL 2960 Programmer with a minimum of 18 months' experience in the use of COBOL, BASIC, and Pascal. The successful candidate will be responsible for the development and testing of software for the company's microprocessor based systems.

An ICL 2960 using MINIBASIC, a BASIC, Pascal, and a range of other languages. The successful candidate will be responsible for the development and testing of software for the company's microprocessor based systems.

For further information about the training or the trainee persons, contact Les Thurgood or John Thorpe at Blackpool and Fyfe College, Ashfield Road, Blepham, Blackpool. Tel: 0253 52352 Ext. 235.

FOR CLASSIFIED ADVERTISING USE

DIRECT LINE
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Senior Systems Designers

Vacancies also exist for Senior Systems Designers experienced in real-time software design. INTEL 8086 microprocessors are used in OTL's products, and related experience would be an advantage. Ref: SSD/S/D

Communications Programmers

We are seeking experienced Communications Software Systems Designers and Programmers capable of program design, analysis, production and testing. For these roles we are looking for candidates who have at least 4 years' experience in a majority of the areas listed below, with the ability to lead more junior staff. There are also vacancies for programmers with 1/2 years' experience. The experience called for includes:

- Industry standard commercial protocols essential e.g. IBM BSC (2780, 3270), ICL CO 1.2.3, X.25.
- Both batch and interactive implementations for technical emulation applications will be required.
- Higher level networking experience is desirable e.g. IBM SNA, DEC-NET.
- Microprocessor programming experience using INTEL products and 8086 ASM, PL/M and PASCAL is desirable but other microprocessor experience would be acceptable.

The salaries for all the positions described are into five figures and the potential for career development is immense. To apply, in the first instance either send a curriculum vitae or telephone for an application form quoting the appropriate reference. These positions are open to both men and women.

Cambridge Recruitment Consultants

1a Rose Crescent, Cambridge CB2 3LL. Telephone: 0223 311316.

MANAGER - NEW BUSINESS MINI/MICRO SYSTEMS

£25K + QUALITY

Our client is an established software house consultancy with a highly successful and profitable history. It is looking for a highly motivated and experienced manager to head up its new business development.

A dynamic increase in recommendations to their clients has created the need to appoint an experienced manager with a successful track record in large mini/micro systems and a broad commercial knowledge to head up the new sector. Potential directorship and equity participation.

For further information contact Brian Mansley or David Lloyd Quinlan. Ref: CW/82/ (0379)

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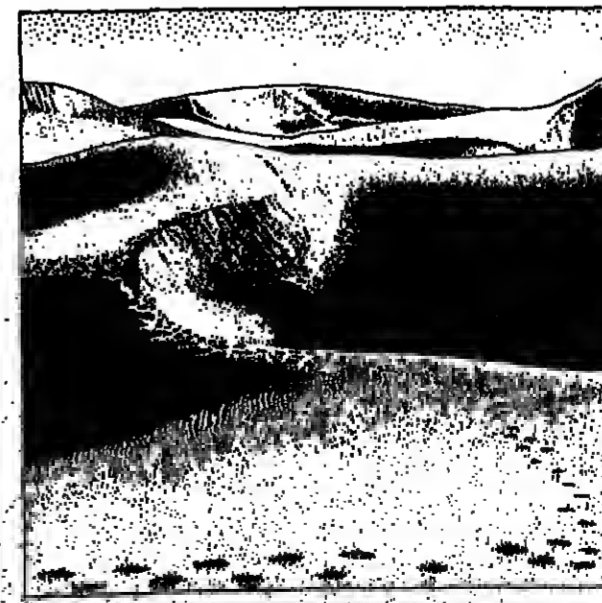
Mainframe Computer Field Engineers to £16,000 Tax Free Saudi Arabia

"The challenge is getting there, finding a fault and putting it right"

NCR Saudi Arabia have substantially improved their sales penetration during recent months, and now wish to recruit additional experienced field engineers to install and maintain customer owned equipment.

In recognising the importance of these requirements, we offer an attractive package including earnings of up to £16,000 per annum, free of income tax, with end of contract bonus, car allowance, medical coverage, furnished apartment and utility provisions, up to 45 days' annual holiday with regular return flights to the U.K. and excellent career opportunities.

The successful candidates are likely to offer a minimum of 4 years' experience in the maintenance of mainframe computer equipment including mag tape drives, disc drives, multiplexers, high speed printers and communications devices. An HND in



Electronics Engineering would be an advantage but it is less important than sound field experience preferably encompassing NCR products. The successful candidates will receive thorough training either in the UK or USA.

The appointments offer two or three year renewable contracts on bachelor status, although married status may be available in certain circumstances.

We have retained Capp Associates to answer your queries and to act on our behalf. Please write or telephone (24 hour answering service) to them, quoting ref: CW116-2F.

Capp Associates, Capp House, 96d South End, Croydon CR9 3SD. Tel: 01-686 9593 International & UK Recruitment Consultants

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EXPERIENCE
VAX 11/780 VMS COBOL OR BASIC
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Computer
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(0444)

COMPUTER OPERATIONS SUPERVISOR

Kendall Globe Limited are Travel Agents and Freight Forwarders with 200 employees and a current annual turnover of about £30 million. A period of considerable expansion is planned and the company is near to completing the computerisation of its accounting system, based on an ICL System Ten computer.

The company wishes to appoint a Computer Operations Supervisor for the following role:

1. To control, operate and maintain its ICL System Ten computer system, aided by one assistant.
2. To control modifications to the system and work on major system development projects.
3. To liaise fully with hardware suppliers and software contractors on problems with and enhancements to the system.
4. To schedule the flow of daily processing work and to liaise with the user sections in the control of documentation input and output from the computer.

Suitable candidates (male and female) with a minimum of 5 'O' levels, will have a substantial level of previous experience in operating computers for accounting systems - preferably ICL System Ten Computers. Age is not material but candidates must have had sufficient experience and authority for this key role working with an accounting function of about 30 people. A willingness to work regularly out of normal office hours is essential.

The salary is £8,300 p.a. plus non-contributory pension scheme and BUPA cover.

Applicants should submit full career details to date to: Mr A. R. Rosenberg, Financial Controller, Kendall Globe Limited, 35-37 Alfred Place, London WC1E 7DY.

(0202)

Lombard Elizabethan Insurance Plc

are looking for an

Experienced Data Processing Technician

to lead a team developing

An On-Line Database System

Applicants should have experience in the insurance industry, should have developed and implemented major on-line systems and should have management experience. Practical knowledge of COBOL, TPS and IMS software and ME29 or other ICL equipment would be a significant advantage. No one with less than 5 years data processing experience should apply.

Excellent fringe benefits.

Salary will be commensurate with ability and experience.

For further details please write or telephone (24 hour answering service) quoting reference CW117/21.

CAPP ASSOCIATES
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Capp House, 96d South End, Croydon CR9 3SD
International & UK Recruitment Consultants

Analyst/Programmer

for in-house systems

to £10,000-£11,000 negotiable

Providing the computer systems needed to support WANG's immensely successful business operations in the UK is an exciting challenge in anyone's language. You will be a key member ensuring the smooth running of the company's internal commercial systems and will have the opportunity of applying new technology to applications. The job is based at our new UK headquarters in Isleworth, although occasional travel to other sites may be necessary.

should have at least 6 months in an analysis role. Experience of WANG or IBM kit is preferable and on-line experience essential, as is an ability to relate to both computer professionals and non-technical staff within the company.

Benefits include pension, BUPA, free life assurance and Stock Purchase scheme. WANG is a fast-growing company and opportunities for career progression are exceptionally good.

Interested applicants should send full cv. to: Mary Gillingham, WANG (UK) Limited, WANG House, 661 London Road, Isleworth, Middx TW7 4EH. Or telephone 01-560 4151 for an application form.

WANG

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NEW CHALLENGE~NEW YORK

THE COMPANY

Exceptional opportunities exist for Sales and Software professionals to join Arbat, the leading banking systems house. Already with over 75 users, Arbat is installing banking and communications systems in the United States, Canada, South America, Europe, the Middle East and Far East, making further steps in Arbat's determined international expansion program.

To date, the company has developed a highly successful range of software products, which include ABS (banking systems) Inflex (message switch) and a fully integrated Money Transfer System.

Arbat is seeking to recruit staff for its expanding operations in New York and Canada.

ANALYSIS/PROGRAMMING - TO \$40,000+ BENEFITS

The main functions of these positions include working on new developments/modifications in a small team environment. It will include analysis and programming in high level languages for real-time banking and part for Arbat's funds transfer applications and the direct clients' systems.

The up-to-date nature of the product environment demands the use of high quality DP technical staff.

Applicants will preferably be experienced in the following areas:

- International Banking applications
- Funds transfer applications
- Basic and/or C Language programming
- DEC PDP or VAX hardware and operating systems

Equally as important as experience is the applicant's confidence and willingness to learn the functions and technical aspects of these roles and the ability to work with a high degree of self-motivation.

Applicants will already design and program to a high standard and be looking to work in a friendly and professional environment.

SALES TO \$ NEG + COMMISSION & BENEFITS

The position requires a sales specialist who has experience in international banking systems and telecommunications to sell advanced real-time computer products in the American market place.

True motivation to succeed will be rewarded as Arbat's excellent product range in the American market place provides ample scope. In return, success will be rewarded by a competitive salary, and commission structure, coupled with excellent career prospects.

BENEFITS

All positions offer excellent career openings in a successful, dynamic and expanding company.

All necessary travel, visa and accommodation arrangements will be undertaken by Arbat for the overseas appointments, and all UK and overseas appointments carry excellent salaries which are regularly reviewed on merit.

To receive further details and an application form, telephone the number below, or return the coupon at your earliest convenience, using the Freepost service.

Please send an Application Form and Company Profile to:

Recruitment Consultants **0434**

Surname _____

First names _____

Full address _____

Position applied for _____

Home tel _____

Work tel _____

Financial System Development

Analyst, Analyst Programmers and Programmers

£20 000 — £31 000 p.a. for a two-year contract in South Africa.

A large South African organisation based in Johannesburg, with well-established DP facilities is shortly to embark on the development of a Loans System and seeks experienced staff to join them on a two-year contract basis.

ANALYST

Aged between 30 and 40, with some ten years' experience in commercial computing (preferably financial systems) you will have experience of transaction processing and ICL hardware, preferably under VME. Highly developed communicating skills will be backed by a sound understanding of programming gained earlier in your career.

ANALYST PROGRAMMERS

You will have some five or six years' experience at this level, which will have included exposure to VME, SCL, TP monitor (preferably TPMS) and a sound knowledge of COBOL. Age range 25-30.

PROGRAMMERS

With some three years' COBOL experience, you will have knowledge of ICL, VME, SCL and TPMS.

Your two-year contract will provide earnings in the range of £20 000 to £31 000 per annum, depending on experience, together with return airfares, home leave after one year, generous conditions of employment and paid storage of household effects in the United Kingdom if necessary.

To take advantage of this real opportunity, please send a detailed curriculum vitae, by August 12th, 1982 quoting Ref. SA/02, to The Computer Consultant, c/o Austin Knight Ltd., London W1A 1DS.

Applications are forwarded to the client concerned. Therefore, any company in which you are not interested should be listed in a covering letter. Interviews will be held in the UK shortly.

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Knight
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AK

(0776)

Johnnie H. H.

Make your mark in our exciting, ambitious development programme

up to £14,000 : South Bucks

Amersham International is a successful, growing company manufacturing and selling high technology products for the health care and research fields.

Rapid worldwide growth in our business demands effective management information systems and our Corporate Information System Department is being expanded to tackle an ambitious long term systems development programme covering production, finance and marketing applications. The Department covers D.P., O.R., O & M, Office Systems, Telecommunications Planning and Information Technology. We have been operating on-line systems for over a decade and already service a network of 70 terminals in the U.K.

We are actively reviewing our future hardware needs and it is almost certain that future developments in computer systems, Office Technology and Networking will lead to an

integrated network of distributed processors, each maintaining its own subset of the company database. We are certainly committed to the use of advanced software techniques and application development tools to capitalise on the database and to reduce systems maintenance in the future.

As our European and American operations become increasingly integrated with our U.K. network we have the opportunity to offer the right people interesting projects and genuine career building experience. We need Systems Analysts, Programmers and Software specialists at all levels of experience to make their own individual contribution to the projects we are tackling.

operating systems, utilities and telecommunications software is essential. COBOL Preferred. Ref. FY.3.

Operations Supervisor

to plan hardware requirements, set standards, control procedures and direct the day to day operation of all computer equipment. 5 years' operating experience of ICL hardware and software is essential. Supervisory experience is a distinct advantage. Ref. FY.4.

For all posts, we offer an attractive benefits package which will include:

- * excellent working conditions
- * 23 days' holiday
- * superb countryside location
- * subsidised restaurant
- * active sports and social club
- * relocation assistance, where appropriate.

Systems Analysts

At least 18 months - 2 years commercial or production systems experience is essential, preferably gained in an on-line installation. Ref. FY.1.

Senior Programmers

At least 2-3 years experience of COBOL is essential, preferably gained in an on-line installation. Ref. FY.2.

Computer Operations Support Analyst

to operationally evaluate new products, provide technical help to users, assist in the development of communications network. Proven experience of ICL

ACTION

Please write with a detailed c.v. to Tim Phillips, Senior Personnel Officer, at the address below. Alternatively, telephone Little Chalfont (02404) 4444, ext. 3569 for an application form.

Amersham
Amersham International plc

White Lion Road Amersham
Buckinghamshire HP7 9LL

We want the Best

Analysts Analyst/Programmers Programmers

Remuneration Package to £14,500pa



R.A. Williams (Systems Consultants) Limited

The Insurance Specialists
Fleet, Hampshire.

R.A. Williams (Systems Consultants) Limited is a small specialist consultancy dealing exclusively with the data processing requirements of the Insurance Industry.

Our consultants, analysts and technicians, between them, account for over 150 years of experience in fields such as Life, Pensions, Unit Linked, Broker Service and Reinsurance. Because of the continuing expansion of our client base we want to meet people who have the flexibility and experience necessary to become part of an exciting, growing company.

We would like to hear from you if you can meet any 3 of the following criteria:

- you have worked on - or managed - at least one major insurance implementation. Knowledge of Life Assurance or the London Market would be particularly desirable
- you have at least 5 years experience in data processing with a solid COBOL background
- you have a sound working knowledge of Taxes Instruments 990 equipment
- you are capable of being promoted - within a short period - to Project Manager with full business responsibility for all aspects of a major project
- you enjoy working with small professional project teams who are frequently under pressure, and you have a flexible attitude to your work

Other benefits include: Merit awards based on recognisable achievement, profit-related bonus, flexible working hours, non-contributory pension. BUPA, personal accident and health insurance, opportunities for overseas travel.

Please contact David Hendry at:

Ferguson Thorley Bowles Associates Limited

International Personnel Consultants

15 Clarence Street, Staines, Middlesex TW18 4SU Telephone: Staines (0784) 79247.

Wrekin District Council is situated within easy reach of the beautiful Shropshire Countryside and offers:

- * 9 day fortnight
- * Rewarding and varied work
- * Free life assurance
- * Generous relocation expenses

In addition, housing is amongst the cheapest in the country (£25,000 for 3 bedroom detached).

Wrekin District Council and Telford Development Corporation have set up a joint computer section, serviced by a new IBM 4331 with DOS/VSE, ICF, RAMIS, due to be upgraded to model group 2 with VM/CMS later this year. Currently the Council has two vacancies.

SYSTEMS DEVELOPMENT PROGRAMMER

(Up to £10,000 p.a. plus pay award from 1 July, 1983)

COMPUTER PROGRAMMER

(Up to £7,875 p.a. plus pay award from 1 July, 1982)

These two posts will be concerned with the analysis, design and introduction of computer systems. The senior postholder will lead a project team and will be responsible for preparing project plans and following them through to implementation. Both postholders will also provide assistance to department staff in the operation of programmes.

Applicants should be qualified to HND level and have substantial experience in this field. A knowledge of IBM equipment, its operating system and assembly programming language is essential.

Application forms are available from the Personnel Unit (Tel: Telford 80951 Ext 451) and should be returned to the Personnel Manager, Malins House, Telford, Shropshire TF3 4LD not later than 12th August 1982.

District of the Wrekin

BOX NUMBERS

Box Number.....

c/o Computer Weekly
Quadrant House
The Quadrant
Gosport, Surrey SM2 8AS

Box number replies should be addressed to:

UNIVERSITY OF ESSEX
Department of Computer Science

Micro-Processor Systems Engineer

Applications are invited for a post as Micro-Processor Systems Engineer in the Department of Computer Science (Computing Service), University of Essex, Colchester, Essex, CO1 3NS.

The duties of the post will include the design, development and maintenance of specialist hardware and software and the provision of consultancy services in both hardware and software aspects of micro-processors to users throughout the University. Applicants should have a degree in Computer Science or the hardware side or similar qualifications and relevant experience.

The successful candidate will be expected to contribute to the general operation of the Computing Service and will join an existing Engineering group reporting via its manager, to the Assistant Director of the Computing Service.

Applications (with copies) including a curriculum vitae and the names and addresses of two referees, should reach the Registrar (Leaving AG/141/CW), University of Essex, Wivenhoe Park, Colchester CO3 3SQ, from whom further particulars may be obtained, by 18 August 1982.

BRIGHTON POLYTECHNIC
Department of Computing and Cybernetics
RESEARCH ASSISTANT
£4,800-£5,350

To work initially for two years with a possible extension for a third year, on the investigation of depth perception from visual images. Computer input is received from a camera and stored digitally. The perceived image will be used for the control and movement of robot arms.

Applicants should have a good honours degree in computing or mathematics. Registration for a higher degree will be encouraged.

Further details and application forms from the Deputy Head of Personnel, Brighton Polytechnic, 110, Colindale Avenue, London NW9 4AT. Tel: Brighton 833925. Ext. 2837. Closing date 18 August 1982.

CAD/CAM SALES EXECUTIVE

£25,000 + (ON TARGET)

Applied Research of Cambridge, a market leader in CAD/CAM systems wishes to appoint a sales executive to handle its activities in the southern half of England.

The successful candidate can expect to receive gross earnings in excess of £25,000 - there is no upper limit. Applicants should have sales experience in interactive graphics or EDP. They must be able to demonstrate the ability to handle contracts, mainly in architectural, industrial and engineering markets, from initial enquiry to final agreement.

Write to:-

Recruitment Officer, Applied Research of Cambridge Ltd., 4 Jesse Lane, Cambridge, CB5 8BA.

Enclosing details of qualifications and experience.



L. E. R. S.

SYNTHELABO
has vacancies in its Pharmaceutical Research Center (L.E.R.S.) in the Paris area for

TWO COMPUTER SCIENTISTS

Suitable candidates will possess a degree in computer science or equivalent qualification and should have a good working knowledge of UNIX and C or PASCAL. Experience of any of the following would also be of interest: PDP 11, LSI 11, VAX, PRIME, networks, DBMS, management information systems, toxicology, signal processing and biomedical research. A working knowledge of the French language would be useful but it is by no means essential. E.E.C. nationality would be an advantage. Applications accompanied by a curriculum vitae will be treated in strictest confidence and should be sent directly to: L.E.R.S. Direction Administrative et Technique, 58-60 rue de la Glacière 75013 PARIS - FRANCE.

RADIO TELEFIS EIREANN, THE IRISH NATIONAL BROADCASTING ORGANISATION, INVITES APPLICATIONS FOR THE POST OF

SYSTEMS PROGRAMMER

Applicants should have a detailed knowledge and experience of ICL's 2900 Operative System, SCL, Super-Structure Products and Hardware. ETE operates two ICL 2955 computers. The operating systems are OME2, VME 2800 and CME. RTE also uses IOMS and IDMSX, with ICL's Date Dictionary System. Workloads are both Batch and On-line, with programme development under MAC.

The post is a permanent one, with a salary in the range:

IR pound 10,252 to IR pound 14,521 per annum.

IR pound 10,765 to IR pound 15,247 per annum.

(from 15th September 1982).

Postcards, requesting application forms, should be sent to:

PERSONNEL ADMINISTRATION MANAGER
RADIO TELEFIS EIREANN
DONNYBROOK
DUBLIN 4
IRELAND

Closing date for receipt of completed application forms - Friday, 13th August, 1982.

BRITISH STANDARDS INSTITUTION

SYSTEMS ANALYST

Wilton Keynes

This is a challenging position involving the investigation and solving systems, with the object of modifying where necessary and implementing new approaches. Candidates should be educated to degree level or equivalent, with 2 or more years' relevant practical experience of business systems in a computerised environment.

Company benefits include 5 weeks' annual holiday, subsidised pension and contributory pension scheme.

Please write with full c.v. to: David Bennett

BSI British Standards Institution
101 Portland Road, London W1 1PF

Pascal Programmers

London

£7,000 to £12,000 + Benefits

This newly formed and rapidly expanding software company are involved in M.I.S. package development and econometric modelling.

Utilizing the new generation of 16-bit micros linked by local area networks, you will be involved in the development of conceptually new products thereby unleashing the power of this new machinery to the user.

Applicants should have a good grounding in PASCAL together with one or more of the following:

- * File Handling
- * Graphics
- * Compiler/Interpreter Writing
- * 8080 Assembler

Recently qualified graduates who feel they can work in a technically demanding environment should also apply.

Please Contact: David Hendry.

Ferguson Thorley Bowles Associates Limited

International Personnel Consultants

15 Clarence Street, Staines, Middlesex TW18 4SU

Telephone: Staines (0784) 79247. Telex: 8814148

Hampshire Based Systems House

Our Client is a rapidly expanding systems house specialising in the development and implementation of interactive systems for the industrial sector.

With sophisticated, high quality products they are set to accelerate into a significant market position.

They are building dedicated teams of career-minded professionals:

Project Managers To £15,000+ Car

Possessing approximately eight years of broad data processing experience, covering programming analysis, design and implementation preferably of manufacturing applications; your responsibilities will cover the total system from feasibility to implementation.

Essential requirements include experience with man management, project co-ordination, client liaison and the ability to work to deadlines within budget.

Senior Programmers £9,000-£11,000

A minimum of three years COBOL programming on any computer hardware is essential plus some knowledge of manufacturing systems. Equally important are program design and documentation of on-line applications and the ability to be effective in a project team environment.

A first class benefits package is offered in addition to the excellent starting salaries.

Please contact: David Hendry

Ferguson Thorley Bowles Associates Limited

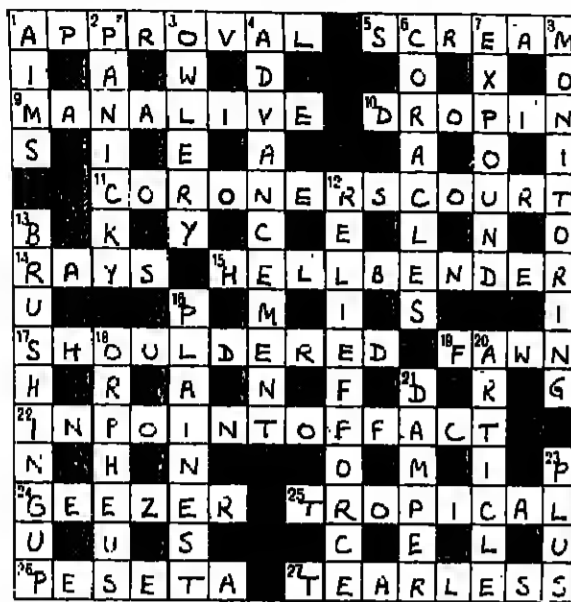
International Personnel Consultants

15 Clarence Street, Staines, Middlesex TW18 4SU

Telephone: Staines (0784) 79247. Telex: 8814148

CROSSWORD

Solution to Prize Crossword No 30



O&M analyst Michael Carter of Australasia's London branch wins our £10 prize this month. Runners-up Pamela Smith, a programmer with RNSD Copenacre, and John Brooke, senior programmer with Cannon Assurance in Wembley, Middlesex.



DEPARTMENT OF ELECTRONICS

The Department of Electronics has been awarded a substantial research contract by a major British electronics company to develop a compiler for VLSI digital system design. In the first instance, this project is funded for two years from October 1982 and includes support for a full-time Research Fellow.

The successful candidate is likely to possess considerable experience in one or more of the following areas:

- Compiler design
- VLSI system design
- Computer aided design
- Logic simulation
- Software engineering

Extensive computing facilities are available including a distributed network of Motorola 68000 computers.

The salary scale is Research Fellow Grade 1A, £6,079-£10,578.

Applications (two copies) giving date of birth, details of qualifications and experience together with the names and addresses of two referees should be sent to Mr T. Barrett, Electronics Department, The University, Southampton, SO9 5NH.

(037)



LECTURESHIP IN COMPUTER STUDIES

Candidates should have a higher degree in Computer Science. Preference will be given to applicants with experience of interest in computer systems architecture, computer networks, operating systems, performance evaluation, simulation, and systems analysis and design. The appointee will be required to lecture as well as to participate actively in research, and will be expected to contribute to the University's research efforts.

Annual salary (supernumerary) will be an 11 point scale HK\$128,840-217,380 (C) + HK\$10,700 approx. Starting salary will depend on qualifications and experience.

At current rates, salaries will not exceed 15% of gross income. Housing benefits at a rental of 70% of salary, children's education allowance, leave and medical benefits are provided.

Further particulars and application forms may be obtained from the Association of Commonwealth Universities, 25 Gordon Square, London WC1H 0PF, England, or from the Appointment Unit, Secretariat's Office, University of Hong Kong, Hong Kong. The closing date for applications is 24 September 1982.

(0379)

PSION MICROCOMPUTER PROGRAMMERS & ANALYSTS

Psion is a rapidly growing microcomputer software house.

We require creative, skilled and able programmers and analysts. Applicants should have experience in developing and maintaining software on one or more microprocessors. This is an exciting opportunity to work with a dedicated team in Central London in the fast-growing area of computers.

Salary range £8,000 to £13,000 per annum depending on skill, experience and creative potential.

PSION LTD
2 Hunsworth Mews, Gloucester Place,
London NW1
Telephone: 01-723 6919 or 723 9408

(0344)

Leicestershire TECHNICIAN Computing/Electronics

Education Computing Centre, Leicester

Salary £2/3 £8084 - £8333

To undertake a key role in the running of the newly established educational computing centre. Duties include demonstrating, setting up, and servicing educational computing equipment. Candidates should have a minimum of two years' experience in the use of microcomputers, and a good knowledge of the educational use of computers.

Further details on receipt of a.s.a. Apply (on forms) giving full details, names and addresses of two referees and enclosing a.s.a. to the Director of Education, County Hall, Glenfield, Leicester by 16th August.

EQUAL OPPORTUNITIES POLICY. Applications are welcome from suitably qualified and/or experienced people regardless of race, disability, sex or marital status.

NatWest Jobs

Data Processing Support Staff

National Westminster Bank offers opportunities to join a team which supports computer systems running the latest IBM hardware (3081) in an MVS-SP/IMS environment.

We have a limited number of vacancies in our Operations Technical Support Group at our London Computer Centre, Abbe Street, near Aldgate, where our installation is currently servicing a large number of systems including an extensive teleprocessing network.

Applications are invited from candidates who have experience in JCL/Utilities and software related to high technology equipment, together with proven skills in the implementation of new systems.

Dependent upon experience, a salary in the region of £7,580 including London allowances is envisaged, together with an attractive range of top company fringe benefits.

To find out more please write for application form to: Miss J. Coles, National Westminster Bank PLC, Recruitment Shop, P.O. Box 165, Heron House, 325 High Holborn, London WC1.

Nat West

SCOTTISH EXAMINATION BOARD, DALKETH, MIDLOTHIAN

COMPUTER OPERATIONS POST

Salary scale £5,982-£6,501 (under review)

This is a permanent staff post. Applicants should have experience in operating IBM-type computers preferably an IBM 4331 using VM/CMS and in job assembly, scheduling and librarian duties. Knowledge of clerical control procedures and data preparation would be of advantage. Two-shift operating will be required at least between March and June each year and a shift allowance will then be paid. For other periods single-shift will apply initially but overtime and weekend work may be necessary.

Conditions of Service will be generally those of the Local Government Service. Application forms from Establishment Officer, Scottish Examination Board, Ironmills Road, Dalketh, Midlothian EH22 1LE (Tel 031 663 6601) to be returned by 20 August 1982.

(0377)

FIELD SERVICE ENGINEERS

SK + O/T + S/BY + CAR CHOICE

Superb opportunity to join a leading Manufacturer of prestige Minis, super minis and systems. This company believes its Engineers should be software involved and offers excellent software/op. system training at its own centre.

Team working environment - possible foreign travel (voluntary) - internal promotions - a chance to get into systems.

If you have a sound technical background, seek to enhance your career into 32 Bit CPUs and systems - then ring NOW.

If you already have a super Mini system background this could be reflected in a basic of up to £12k in a managerial or support role.

Don't delay Ring Mike Today

01-645 6441 or 01-394 2359 (after 7pm)

(0401)

microserve™

a commitment to service

MICROCOMPUTER SERVICE ENGINEERS

Microserve, the nationwide field service division of the Comart Group of Companies, has established service locations in Glasgow, Manchester, Birmingham, London, Cambridge and Southampton.

We are looking for experienced service engineers to strengthen our Microserve team in the Birmingham and London areas.

If you have a minimum of 5 years' experience in the electronics industry we would like to hear from you. We would expect you to be familiar with TTL, MSI and LSI Technologies with the ability to fault find complex logic to component level. Salary will be negotiable, dependent on experience and qualifications.

Please write or telephone for an application form to: June Hamilton, Comart Limited, Little End Road, Eaton Socon, St Neots, Cambs. Telephone Huntingdon (0480) 215005.

A member of the Comart group of companies

(0389)

THE Comac CONTRACT

UK
IBM Sys 38 RPG111 Prog/Analyse
IBM OS/VS on MVS COBOL Prog.

IBM CICS DLI COBOL Prog. Analyse
Urgent

IBM PLI CICS COBOL Prog. Analysts
Urgent

IBM PLI Prog. Urgent

IBM Sys 34 RPG111 Prog.

IBM DLI DOS VSE COBOL CICS System Prog.

IBM Series 1 RPG Prog. Analyst

IBM MVS MARK IV COBOL Prog. Analyst

Honeywell DM4 IDS 2 COBOL Prog.

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CONVERSION PROGS.
ICL 1900 PLAN DMS TP to UNIVAC 1100 COBOL
Surround a 600 CMS to IBM MVS COBOL to COBOL
H. L. 84 to IBM MVS COBOL to COBOL
IBM ASSEMBLER to COBOL (MVS TSO/SPF)
IBM COBOL MVS VSAM TCAM COMMS INTERFACE
IBM ASSEMBLER COBOL MVS TCAM

ICL 2900 VMEB IDS Prog. Analyst

DEC PDP 11 RST8 BASIC+2 Prog.

DEC PDP 11 VAX COBOL Prog.

MICRO PROCESSOR SOFTWARE FORTRAN Prog.
TI 990 DX10 BASIC Prog.

HOLLAND
UNIVAC V77 Prog.
UNIVAC 1100 DMS Prog. (Germany and Holland)

USA
HP1000 UMLX (South Carolina)
HP1000 UMLX C Prog. Urgent

S. ARABIA
IBM PLI Prog. & Analysts. Urgent

OPERATIONS
Honeywell GCOS MOD 400 Urgent

For further information on the above
vacancies also Overseas vacancies please
contact Mike or Elizabeth

We have a reputation for moving quickly and efficiently so for an
informal chat telephone us today or send your c.v. as soon as
possible.

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24 HOUR
ANSWER
SERVICE

SYSTEMS PROGRAMMER

Ref CW7/11
£10,538-£11,689 p.a. Inc. 10% award pending

We need an experienced Systems Programmer to assist us to maintain the momentum of change in the organisation. Holding a degree in law, the position will be responsible for the evaluation, installation, maintenance and development of all software in addition to the development and control of network procedures. You should have at least three years experience as a Systems Programmer, sound assembler knowledge and experience of the software currently installed.

PERSONAL COMPUTING OFFICER
Ref CW7/12
£9,289-£11,201 p.a. Inc. 10% award pending

Personal Computing is a key area of expenditure. We are developing our own development projects and allowing user staff to enhance existing and develop new systems. The work will include conducting feasibility studies into user requirements and recommending the use of personal computing facilities. In addition, the work will also involve the design of systems using 8080 and microfilm facilities.

You should have at least five years D.P. experience including analysis and knowledge of systems software in addition to a working knowledge of API and BASIC. Benefits for those people include modern office, subsidised restaurant, sports and social club, internal free season ticket, generous holiday arrangements and flexitime.

For further information contact Tony Elford on 037-8464 Ext. 585.
Please Tel. ext. 282 for application forms.
Closing date for applications 10th August, 1982

The Royal Borough of KENSINGTON & CHELSEA

Applications are welcome from suitable qualified disabled persons

(0389)

SMR

Sales & Marketing Recruiters Ltd

A Sales and Marketing Services Company

SALES EXECUTIVES (SALES MANAGER DESIGNATE!)

NATIONAL RESPONSIBILITY

It's not very often the chance occurs to get in at the beginning of a new sales operation within a fast expanding and already successful, well established high technology company. Our client, Langton Information Systems, has already built its annual revenue into seven figures and with the financial security of a very large commercial group behind it, sees its future hampered only by the lack of a Senior Sales Executive to fully exploit its considerable business potential.

Langton has built up an enviable reputation for forward thinking and public excellence in the computer based creation, management and publication of textual data and graphics, with particular emphasis on electronic printing and publishing into a wide variety of media, including Videotex, photocomposition, microfilm and laser printers. The range of products and services embraces consultancy, systems development, software products and the provision of specialist services.

We are seeking an accomplished Sales Executive in

CENTRAL LONDON

- With substantial experience of selling computer software products. Experience of the Viewdata/Videotex and/or electronic publishing market, would be a bonus, but by no means essential. First class selling skills, enthusiasm, commitment and the ability to absorb and disseminate technical information are essential qualifications for this job as is the talent to quickly graduate into a national sales management role. It is envisaged that on target earnings will be

IN EXCESS OF £20,000 + 2 LITRE CAR

Please supply complete career details to Alasdair Scott or Peter Hubble, quoting reference SSE/072.

(0373)

LONDON & SOUTH

29 Oxford Street
London W1. (01) 734 9776

Answering Service after 6 pm and weekends
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

MIDLANDS & NORTH

39 Bore Street, Lichfield
Staffs. (05432) 56612

Software Technology Research

The Science and Engineering Research Council has just initiated a national programme of academic research into Software Technology. The programme's objectives are to stimulate more high quality software engineering research, to improve the academic software technology base of software tools and computing facilities (UNIX, PERQ single user systems, high speed local and wide area networks), and to promote technology transfer between academia and industry.

The programme will last at least 3 years and is being co-ordinated and supported by the Computing Division of the Rutherford Appleton Laboratory which requires two further staff:

Software Technology Co-ordinator:
Someone with a formal, state-of-the-art understanding of Software Engineering who can guide the national research effort and build links with industry. The successful candidate is likely to have had post doctoral research experience. Appointment will be made at Senior Research Associate level for a fixed 3 year term.

Software Technology Programmer:
Someone to mount and develop software tools, generated by the programme, on the network of PERQS running UNIX, PASCAL or UNIX experience desirable, but not essential. Final year undergraduates in computing-related subjects may apply. Appointment will be made at SO or HSO level.

Scientific Officer	£5,432-£7,399
Higher Scientific Officer	£6,840-£9,136
Senior Research Associate (fixed 3 year term)	£8,590-£9,678

Appointment as a Higher Scientific Officer requires a good honours degree and several years relevant experience.

The Laboratory is a friendly community with its own restaurant and extensive sports facilities nearby. Benefits include a local transport service, generous holidays, and a non-contributory superannuation scheme.

Contact Recruitment Office, Personnel Group, Rutherford Appleton Laboratory, S.E.R.C., Chilton, Didcot, Oxon. OX11 0QX, or telephone, Abingdon 21900 Ext. 510 quoting ref. VN 048.
Closing date for applications: 23rd August 1982

(0389)

serc Rutherford Appleton Laboratory

SOUTH COAST

If you'd like to know more about vacancies for Operations, Programming or Analysis in the South Coast Computing Unit, please contact:

The Managing Director of
CBS APPOINTMENTS
Bournemouth (0202) 232155 or at
home 0930/4646 (0202-232155)

(0471)

INNOVATION BUSINESS SYSTEMS ANALYST

Established seventeen years ago, Technical Indicators is a rapidly expanding company that specialises in the distribution of a wide variety of microfilm and microfiche based information systems that provide essential technical data to engineers, designers and buyers.

We are about to upgrade to a DEC VAX 11/780 computer system to aid the production process. Later this system will be used for the development of new products. To assist us, we wish to recruit an experienced free thinker who meets the following requirements:

- At least two years experience in business systems analysis.
- Limited computer programming experience.
- Professional attitude.
- Age 25-30.
- A knowledge of VAMP and Fortran would be an advantage.

We are particularly anxious to find someone who is not steeped in the traditions of conventional analysis, specification design, coding, etc. We propose to pass straight from analysis to implementation via the ALIAS system development table. If you are looking for a career of fulfilling your role as a business systems analyst, write with details of education, career and present salary to:

G.W.G. Hume
Director of Technical Analysis,
Technical Indicators Limited,
Widley Road,
Bucknell,
Derbyshire, NG12 4DW.

(0404)

SALES BIT

Quality of Management — 20

How to get the right person for the job

OKAY, you read last week's Sales Bit — and even if you didn't you are probably aware that it is likely to take a little luck and three months or more to recruit the kind of salesperson you need. Perhaps you already appreciate that a vacant territory could be costing you five figures a month in lost revenue. The question is, how do you solve the problem of securing salespeople of the right calibre?

A large proportion of those people involved with selling in the computer industry would be unemployed to any other industry and the greater proportion of these are likely to be seeking re-employment, if there is any justice in this world.

Unfortunately the jobs they are seeking are selling jobs within the computer industry and like as not they will be presented to you as soon as the word gets out that you are looking for sales personnel.

So what is the answer? Unfortunately there isn't one, at least not in absolute terms. However, there are some basic guidelines to follow, which can at least remove some of the hassles and insert a little objectivity into the satisfaction process.

Let's look at the alternative recruitment methods available to the sales manager. There are four which just about cover the full range of practical means.

You can attempt to make direct personal contact with your competitor's best salesman; you can shanghai willing victims in their local pub straight after work; you can even molest stand-weary salesmen at Compec, but these are generally considered to be socially unacceptable methods.

The usual approaches are:

- Word of mouth;
- Self-operated recruitment campaign;
- File search of agencies;
- Agency operated recruitment campaign.

Word-of-mouth is an under-used and underrated recruitment process that can be effective if used in a positive manner as opposed to a half-hearted, vague, shout-in-the-dark. This approach can be divided into two strategies. First, by formally asking the existing salesforce to put out the word to salespeople they meet in the field that the need for new recruits exists.

There is no better recommendation for a potential employee than the endorsement of an existing employee. Offer a financial incentive if you must — but I feel that such artificial motivation should be unnecessary in the right team environment.

The second is a variation of the first. Your clients are probably more aware than anyone about who are the good and the bad local salespeople. Those with whom you have a good business relationship will be only too delighted to let your situation be known to those they regard as suitable.

However, word-of-mouth is only effective if applied in a planned and systematic manner. Do not mention to your salespeople in passing that

might be a good idea if they could let any competitive salesmen or clients know that the need exists — that will not work. They will probably forget or never get around to it.

This approach needs to be put out as a firm instruction to ensure that selected clients are informed of the need within a given time frame. This can often be an effective means of recruiting, for it also has the double benefit of producing well qualified and recommended candidates and costs very little.

On the other hand, you may decide to carry out your own advertising-based recruitment campaign. After all, it is simply a matter of shoving an ad in the paper and handling the response isn't it?

Oh I see, you've already had that disaster! Then you will know that it is not as easy as it might appear. There are lots of reasons why, but the main one is that despite the shake-out of recession, the computer industry is still desperately short of salespeople who can achieve real sales success.

The really good ones are already earning a high income and insert a little objectivity into the satisfaction process.

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You can attempt to make direct personal contact with your competitor's best salesman; you can shanghai willing victims in their local pub straight after work; you can even molest stand-weary salesmen at Compec, but these are generally considered to be socially unacceptable methods.

The usual approaches are:

- Word of mouth;
- Self-operated recruitment campaign;
- File search of agencies;
- Agency operated recruitment campaign.

Word-of-mouth is an under-used and underrated recruitment process that can be effective if used in a positive manner as opposed to a half-hearted, vague, shout-in-the-dark. This approach can be divided into two strategies. First, by formally asking the existing salesforce to put out the word to salespeople they meet in the field that the need for new recruits exists.

There is no better recommendation for a potential employee than the endorsement of an existing employee. Offer a financial incentive if you must — but I feel that such artificial motivation should be unnecessary in the right team environment.

The second is a variation of the first. Your clients are probably more aware than anyone about who are the good and the bad local salespeople. Those with whom you have a good business relationship will be only too delighted to let your situation be known to those they regard as suitable.

However, word-of-mouth is only effective if applied in a planned and systematic manner. Do not mention to your salespeople in passing that

might be a good idea if they could let any competitive salesmen or clients know that the need exists — that will not work. They will probably forget or never get around to it.

This approach needs to be put out as a firm instruction to ensure that selected clients are informed of the need within a given time frame. This can often be an effective means of recruiting, for it also has the double benefit of producing well qualified and recommended candidates and costs very little.

On the other hand, you may decide to carry out your own advertising-based recruitment campaign. After all, it is simply a matter of shoving an ad in the paper and handling the response isn't it?

Oh I see, you've already had that disaster! Then you will know that it is not as easy as it might appear. There are lots of reasons why, but the main one is that despite the shake-out of recession, the computer industry is still desperately short of salespeople who can achieve real sales success.

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